

Burroughs new president takes over in top level shake-up

by Kevan Pearson
A NEW man has taken control of the day-to-day running of Burroughs in the US. Paul Stern, previously executive vice-president, has taken over as president and chief operating officer.

He replaces DuRay Stromback, who is to retire at the end of the year. He will continue as vice-chairman until then. Burroughs denies that he is being asked to step aside.

The move is seen by Wall Street sources as completing the managerial changes which began with the appointment of Michael Blumenthal as chairman 18 months ago. Since then Blumenthal has put outsiders into 20 of the top 25 positions at Burroughs.

Stromback was appointed to the presidency at the same time as Blumenthal became chairman and chief executive.

The board has also approved changes in the managerial structure of Burroughs, which will simplify the control of the company and put Burroughs' full weight behind the "line of business" marketing policy which the company talked about eight years



BLUMENTHAL... Bringing in outsiders.

'Scrap Prestel index' - Consumer Council

by Andrew Thomas
MATERIAL held on Prestel is not subject to stringent enough testing before being introduced, and the indexing system is frustrating for users, according to a report published by the National Consumer Council.

The report, prepared by E. Scott Maynes, professor of consumer economics at Cornell University in the US, says that British Telecom should introduce lower charges for private users in order to establish a domestic market.

Maynes cites several shortcomings of Prestel, including the lack of testing before material is introduced to the system, and advises that the hierarchical indexing system, designed for ease of use, should be scrapped. Some subject headings are ambiguous, and there is nothing to warn users if the information they require is not available, he says.

Fifteen questions were devised to test the system. Answers to these questions were either highly satisfactory or highly unsatisfactory.

The main recommendations of the report include the replacement of the existing tree index with something which will minimise the possibility of wild goose chases, save money, time and psychological effort when searching for information, and maximise the probability that the consumer will obtain the data required.

Maynes envisages a system which will operate using several keywords which together might solve the consumer's problem with a single inquiry.

A possible alternative would be the revision and expansion of the printed classified index, rather than reliance on the internal index. Prestel is used National Consumer Council, 13 Queen Anne's Gate, London SW1 220.



Annette Goodhart of F International's Amsterdam office answers inquiries as chairman Steve Shirley (right) looks on.

CSA goes overseas—but turnout for software seminar disappoints

POOR attendance at a seminar aimed at promoting British software expertise marred what was otherwise a successful first collective overseas exhibition venture by the Computing Services Association.

The show was Europe Software 1982 in Utrecht last week, and most British companies that took advantage of the CSA's joint exhibit were well satisfied, according to director general Dr Doug Eyskens.

The show provided cheap low-risk exposure to the Dutch market, although any exhibitor expecting the event to live up to its grandiose name and attract a pan-European audience would have been disappointed. Nearly all who attended were from the Netherlands.

About the seminar held next

door to the main exhibition hall Eyskens remarked, "The British Embassy in the Hague were responsible for finding an audience for us, and they told us a week before the show that they were expecting 100 people, including more than 50 who had given written acceptances—all senior people from the Dutch industry. But only about 20 turned up. I don't know why. I suppose the CSA should have handled the invitations itself."

Peter Davies, commercial councillor with the British Embassy in the Hague, admitted that the turnout was disappointing. "More than 200 Dutch people were invited. We registered 38 people who turned up but that included CSA members."

"We intend to ask people who sent written acceptances why they

didn't attend, and also to send copies of the seminar papers to all those invited."

Apart from Doug Eyskens, speakers at the seminar included CSA president Roger Graham, Hoskyns Group marketing director Brindley Reynaud, and chairman of F International Steve Shirley.

Any disappointment Steve Shirley may have felt about the seminar was more than compensated for by her delight with the interest in F International's exhibit.

"We have made more impact in Holland with our stand at Europe Software than we have made in the four years that we've been operating here. The sales inquiries we have picked up are like gold dust," she said.

NEWS BRIEF

GEC may buy West German giant

AFTER five years of losses, West German electrical giant AEG Telefunken looks set to break up, with GEC of the UK a potential buyer of the company's electronics subsidiary.

AEG is one of West Germany's biggest electrical manufacturing concerns with interests in a broad range of electronics and related fields. Although the data processing and electronics business is thought to be profitable, the consumer electronics divisions have persistently forced the company into losses.

More power

BRITISH minicomputer manufacturer CTL has enhanced its IBM communications support. It has launched a more powerful version of the 3270 emulator. The new product will allow any CTL system using the company's ICE network to act as a cluster controller supporting up to eight workstations.

Software release

MINICOMPUTER manufacturer Computer Automation in Rickmansworth has released a software package to link its SyFA users within an existing SNA network to a host IBM mainframe. SyNET, already installed at Rank Hovis McDougall's IBM-based centre, enables the user to collect data from SyFA node processors for storage on the host machine, or to distribute it to them, and to initiate utilities remotely.

Thousand sales

SALES of ICL's System 25 minicomputers have exceeded 1,000, less than a year after launch. The company has also reaffirmed System 25's place in its product line with the announcement of additional facilities, including a new processor with 50% more performance.

Intel strengthens hold on 16-bit market with five-year expansion plan

by Robert Parry

ON the heels of National Semiconductor's official release of its new high performance microprocessor family comes fighting talk from Intel.

With its iAPX 186, a more powerful and highly integrated version of the 8086 16-bit processor now available for sampling, Intel claims a ten-fold improvement in performance/price ratio and the disappearance of the cost hurdle in moving from eight to 16 bits.

Within the next five years, Intel plans to introduce over 70 new processors and support chips. In the high performance microprocessor market these will include market segment oriented versions of the iAPX 86 family—integrating tasks on to the processor chip for particular applications such as robotics, personal computing and word processing—and a 32-bit version, the 386.

By pulling support functions on to the main 186 processor chip, Intel reckons it has reduced the

cost of components for a typical 16-bit application to less than half that of an 8085-based kit, and only a little more than on 8-bit 8085 system.

In large quantities Intel estimates the 186 plus two latches will cost about \$36, compared to \$74 for an equivalent 8086 system with about 20 separate chips.

"It will allow Intel to penetrate key markets," says Microprocessor Division general manager Dave House, "and will have a profound business effect. It will convert a significant proportion of the 8-bit market to 16 bits."

While House still sees shipments of the 8086 increasing over the next few years, he feels customers will move over to the 186 for new designs. "I expect the 186 to become the favourite over the next couple of years."

He dismissed competition from National's new chips (see page 6) — "they are too late" — but sees two main rivals: Motorola,

offering an alternative chip architecture, and Japan as an alternative hardware source.

The 186 ties up the range of processors promised by Intel two years ago. These included the 186, 286 and 432 at the top end of the 16/32-bit scale. The 32-bit 432 has a different architecture from the others, an object-oriented architecture which House thinks will dominate by 1990.

Meanwhile, the march of devices using the 8086 architecture, targeted at data processing applications and traceable back to the first microprocessor, Intel's 4004, continues. A 32-bit device, the iAPX 386, is scheduled for 1984. It will be compatible with the earlier chips. Like the 286 it will have an emulation mode enabling it to run 8086 software "blindingly fast," says House.

The 386 will have a 32-bit bus, Multibus II, and be able to address large data structures using 16-megabyte segments.

HOUSE... Opening up the 16-bit market.

Graduate list set up by NCC

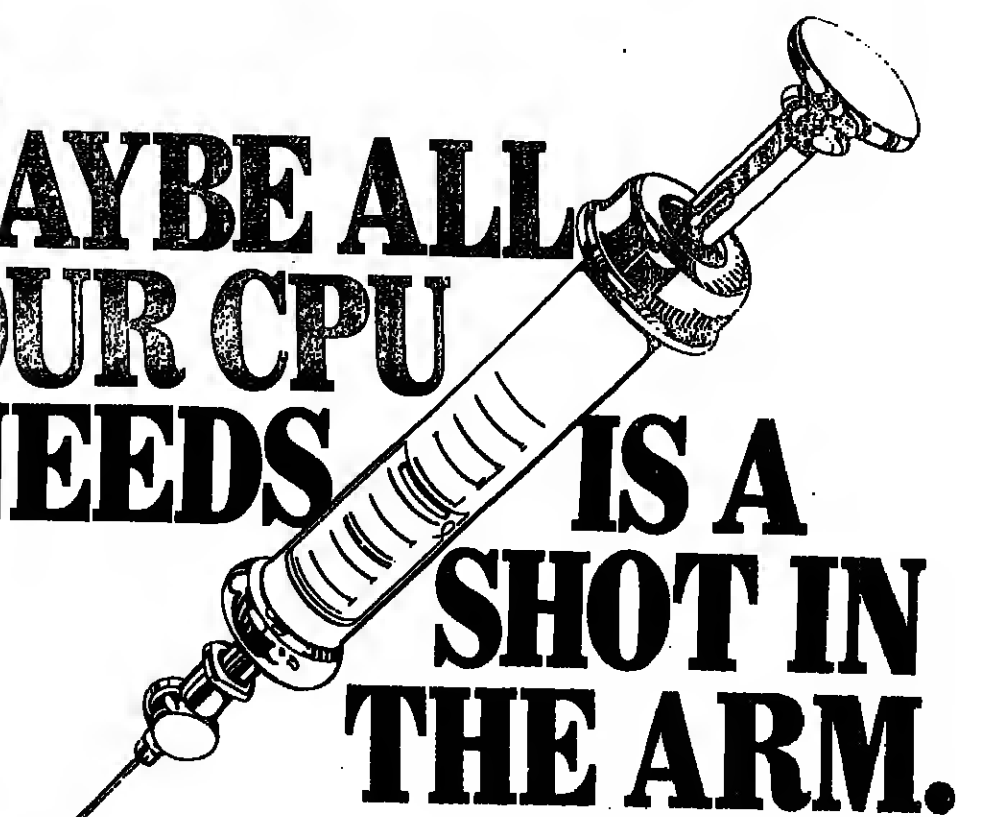
by Andrew Thomas

THE National Computing Centre has set up a register of graduates seeking employment in the computer industry in an attempt to reduce the shortfall of experienced staff. A survey carried out by the NCC and Computer Weekly in December showed that there were 11,000 fewer applicants than vacancies at all levels.

Alan Lewis, a senior consultant for the Careers Projects Division of the NCC, claims that the problem stems from a failure by employers to recognise that new talent must be brought into the industry. If investment in training is not made, the supply of experienced staff will dry up, he said.

The register, at present restricted to the North-west, contains details of graduates who have expressed an interest in working with computers and who have successfully completed a four-hour test for suitability as programmers or analysts.

Prospective employers are offered a selection service, and are furnished with a short-list of the five graduates deemed most suitable for their needs.



MAYBE ALL YOUR CPU NEEDS IS A SHOT IN THE ARM.

Govt accused of 'fudge and compromise' on data protection law

by Our Parliamentary Correspondent

THE government has refused to give any firm undertakings to include data protection legislation in the next parliamentary session. But Home Office Minister Timothy Raison again confirmed that the government was committed to making progress on the issue.

Raison was replying to criticism in the Commons of the government's White Paper on data protection. Andrew Bennett (Lab, Stockport North) called the White Paper an example of "fudge and compromise" satisfying nobody.

Bennett said during Commons questions that the White Paper would not give genuine protection to the individual and was in danger of setting up a bureaucracy which would achieve nothing.

Raison acknowledged that the comments so far received included

criticisms of features of the proposals. But he reported that there had been widespread acceptance that the government's approach was a reasonable and balanced one. Bennett's "tired platitudes" did not help, the Minister said. The government believed that legislation would prove right and would be widely accepted.

Geoffrey Dickens (Con, Huddersfield) asked for a review within 12 months if the data protection procedures outlined in the White Paper proved ineffective.

Robert Croy (Lab, Kilmarnock) protested at the lack of any provision in the White Paper for the protection of the accumulation of data in the £20 million special branch computer. But Raison said it had been made clear in the European convention on the subject that matters involving State Security were exempt from legislation.

BGS drops Logica as UK agent

by Andrew Thomas
BGS SYSTEMS, which specialises in capacity planning products, has dropped Logica as its UK agent.

The US company is to launch a direct marketing campaign for its packages in the UK. Its products, such as Best/I, Crystal and Capri/MVS, have been supplied to more than 300 large installations, mostly in the US.

Nick Kenyon, manager of Logica's capacity planning division, expressed surprise at the BGS decision to go it alone.

"As far as I'm concerned, we're still negotiating deals with BGS for their products. Beyond that I'm not prepared to comment," he said.

Robert Goldberg, BGS vice-president and co-founder, was in London last week for the start of the UK campaign. He confirmed Logica's belief we can give a better service to our customers by dealing with them direct," he said.

"There is a real need for accurate capacity planning and predictive tools in the UK, especially in the banking field. I believe that the UK is several years ahead of the



KENYON... Surprised

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MICRO NEWS



BLANDFORD... Commercial leverage

MPSL for Sharp

MICROSOFTWARE house MPSL has added the Sharp PC-3201 business micro to the range of hardware running its BOS/5 MicroCobol software. Over 40 8-bit and 16-bit minis and microcomputers can now run MPSL application software.

For Sharp the deal moves it well into the software business with proven business application and vertical industry packages.

The deal is with Sharp itself, but MPSL has access to some 30 dealers. "It's always nice to do business quite high up the distribution chain," says MPSL sales director David Blandford. "It gives us more commercial leverage."

NatSemi joins advanced microprocessor race

A LATE entrant has joined the advanced microprocessor race. After years of development - and delayed launchings - National Semiconductor's NS16000 is on general release, with distribution promised for July.

The family of processors is based on a 32-bit internal architecture and will include devices with eight, 16 and 32-bit external data buses. The first to appear will be the 16032, an 8-bit external chip. NatSemi has silicon for these now, says product manager Gil Rada, and samples have been with major US and European customers since last November.

The next microprocessor to appear will be the 16016, a bi-lingual version of the 16032 which also executes 8080 object code. It will be followed by the 32-bit device and CMOS versions. The new family eventually will have seven CPUs backed up by a variety of peripheral chips.

The first peripheral device will be the 16082 memory management

unit to handle the virtual memory capability which will be implemented from the start.

Major customers will have it by May, and a floating point unit (16081) and interrupt controller (16201) by September. Off-the-shelf delivery is expected by the third or fourth quarter, says Rada.

Future peripheral chips will be developed by NS16000 second sources as well as by NatSemi. There are three so far - Fairchild, Synetec and Eurotechnique - and the three will produce all of the chip family. Like Motorola's recently reinforced links with alternate sources for its 68000 microprocessor family, NatSemi's ties with its second sources are more of a partnership, a "true technology transfer" according to Rada.

More important than the hardware - and certainly more relevant than the actual width of the external data bus - is the software support for the family, Rada says. All the CPUs will be fully software compatible and a number of

third party software deals have been made. Companies involved include Digital Research, which developed the CP/M micro operating system, and Whitesmiths, developers of Unix-like operating system Idris.

The software deals bring in a variety of tools for system builders to develop applications on the 16000, with two or three operating systems and some ten compilers, says Rada. The family is supported on NatSemi's microprocessor development system, Starplex, and in-circuit emulation is available.

In joining this particular chip race, NatSemi sees itself up against Motorola with the 68000. "I don't think Intel will be the main competition," says Rada, despite the 8086's good lead in volume terms. "The real battle will be between NatSemi and Motorola."

It is a battle worth fighting. NatSemi estimates a world market worth \$750 million by 1985 for 16/32-bit chips and associated software, and is confident its 16000 series will take about 21% of this.

by Robert Parry



ASHBURNER... Aiming at the small to medium-sized company.

Two companies React to the mini market

A COMPUTER systems house and a consulting group have joined forces to take on minicomputer systems with a multi-user microcomputer-based estimating and control system.

The system, called React, is made up of software from Solihull-based P-E Consulting Group and hardware from CPS Data Systems of Birmingham.

CPS introduced its US manufactured hardware into the UK at the end of last year. A four-terminal system with 10 megabytes of hard disc and graphics printer to run the React software under the Oasis operating system costs just under

£20,000. The package includes two weeks' consultancy to fit the system to the user's needs.

The React package enables users to assemble quotation summary listings, get component routing information, estimate for material and labour costs, and generate progress and cost reports.

"It is designed for use by the small to medium sized company," says CPS commercial manager Nick Ashburner. "And we are offering a more sophisticated package in terms of hardware and proven software than many of the mini-based products currently on offer."

Laser aimed at low end of range

SURREY-BASED mini system supplier Semaphore Computer Systems, of Godalming, has followed the trend of the big mini makers by releasing a microcomputer to attack the bottom end of its market.

Semaphore is importing US-built boards and assembling them to sell on as the Laser, a microcomputer designed for operation as a standalone unit or as part of a multi-user network. Laser uses either a Z80 8-bit processor or an 8086 16-bit chip, and comes with up to 256K of RAM. Winchester hard discs or Phoenix cartridge drives provide mass storage. The system is upgradeable from the 8-bit version to the 16-bit.

There is a range of UK application software to run under CP/M, MP/M or Oasis operating systems. Semaphore's managing director, Brian Young, favours Oasis, and sees it giving "solid multi-user handling capabilities" for the type of market he is aiming at.

"We are going for the lower end mini level application market," he says. "We already have a 16-bit mini - the Vanguard 7500 based on the Sperry range - which are fairly hefty units."

The Laser machine can cope with eight users on the Z80-based unit, or 32 users with the 8086.

64K chip makes a comeback

US semiconductor manufacturers have started a comeback in 64K dynamic RAMs, with "second generation" chips technically more advanced than those from the Japanese companies.

Intel, which put a 64K chip on the market then withdrew because of production problems, has re-announced its entry, with full-scale production promised by the end of the summer.

The chip, named 2164A, uses Intel's latest fabrication technology HMOS-III, to give 150 and 200 nanosecond devices. Redundant memory cells are incorporated to give improved yield.

Other US chip makers coming on to the 64K scene are Motorola, Fairchild and National Semiconductor, all of which expect to gain a significant share of the market still dominated by the Japanese: five: Fujitsu, Hitachi, Mitsubishi, NEC and Oki.

Dealer appointed

KINGSTON-BASED microcomputer supplier: Competition has been appointed a dealer for the ACT Sirius I. It will offer a consultancy service as well as providing operator training and service facilities for the machine.

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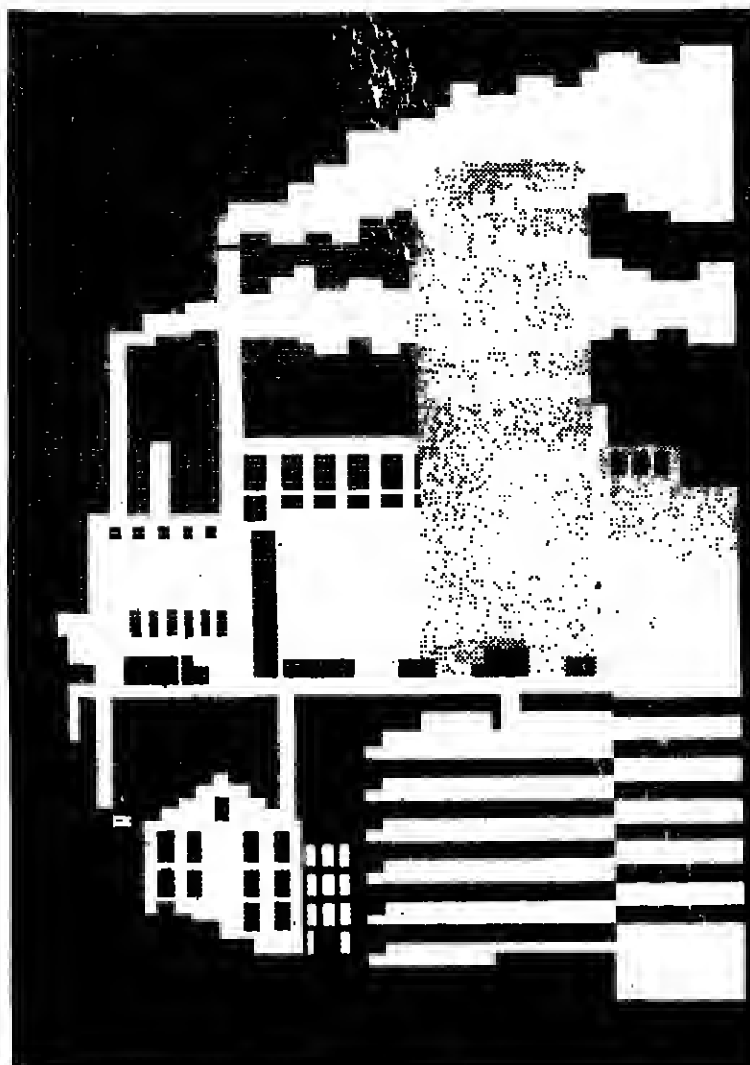
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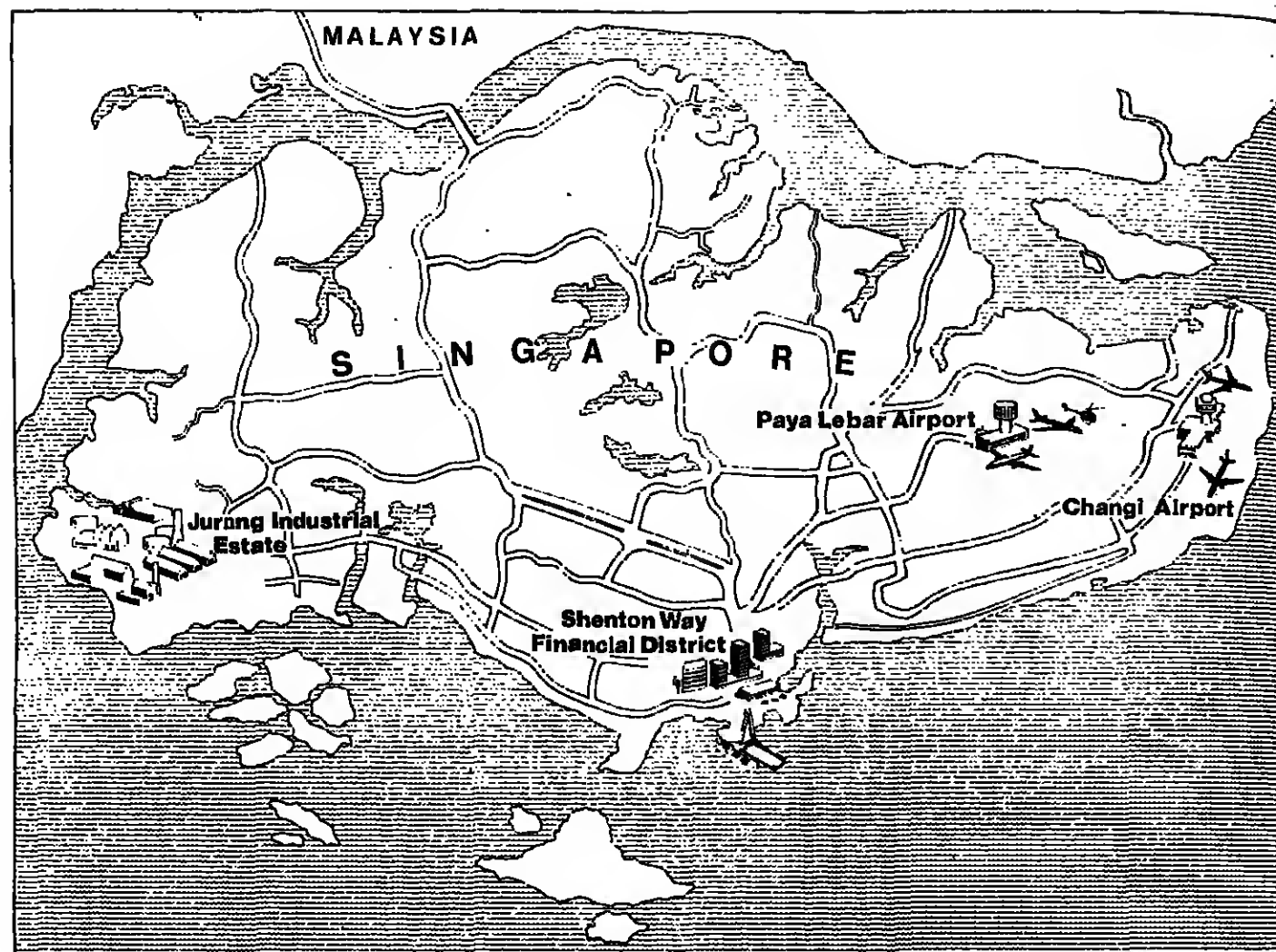
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Singapore bids to rival Japan as computer Mecca of East

A government-led computerisation effort is now in full swing in Singapore (writes a Special Correspondent). The national drive to computerise covers all areas of economic activity, including the launch of a multi-million dollar computerisation programme in the Civil Service. The success of this so-called second industrialisation aims to put Singapore on the same level as Japan by 1990, and represents major opportunities for foreign computer companies.



THE highly successful industrialisation of Singapore in the last two decades is largely due to the effectiveness of the Economic Development Board, established to attract foreign investment. Now an equally omnipotent National Computer Board (NCB) has been set up to promote and assist in the establishment, development and expansion of the computer services industry.

As its first major task, the NCB has been entrusted with a £25 million Civil Service computerisation programme over the next three years. The latter touches anything from formulating economic policies to the licensing of pets in the city-state.

Its activities encompass the 10 major government ministries: Finance (income tax processing), Trade and Industry (economic modelling), Labour (manpower forecasting), Health (online access to patients' files), Home Affairs (24-hour computer-aided response to police and emergency services), National Development (land use analysis), Communication, Environment, Education and Social Affairs.

A major objective is to provide a more productive and cost-effective service by cutting down on manpower. In contrast to most Western bureaucracy, the Civil Service in Singapore has been able to shed staff while expanding on services over the past three years.

Another major consideration is to provide a base and an impetus for the expansion of the local computer industry and form an integral part of the overall national strategy to develop Singapore into Far East's foremost computer centre.

The estimated hardware requirement includes 13 mainframe and seven minicomputers, with 683 visual display units and 208 character printers. The majority of the application areas are online, interactive systems using decentralised hardware.

The NCB will act as the sole buyer and seek out bulk purchase to reap the benefits of economies of scale. Presently the local software industry is characterised by many small firms, and the sheer size of the contract will compel them to pool their limited resources to qualify for tender.

However, the bulk of the order will still be handled by the major foreign computer manufacturers. This injection of foreign expertise will help Singapore to leapfrog to the high end of information system technology.

Apple Computer has chosen Singapore to set up its first overseas manufacturing subsidiary. Reflecting the parent company's confidence in the local availability of components, skilled labour and good operating environment, it plans to increase its initial investment of £5 million to £12.5 million.

Presently it is producing 75% of the worldwide requirement of the printed circuit board (PCB) for the £700 Apple II computer.

Hard on its heels, Japan's second largest and fastest growing microcomputer company, Sord, has opened its second overseas plant in Singapore. Out of its initial investment of £4 million, 30% is earmarked for R&D facilities, and represents the first substantial R&D project to be undertaken by a Japanese company in Singapore.

The main carrot for Sord has been the generous 10-year tax-free holidays offered. For a start, the lowest class of business microcomputers, the £1,500 M23-III with a memory of 128K will be produced. Later other models sold under the brandname of Orange will be introduced.

Since its formation in 1970, Sord has achieved an annual growth rate exceeding 100% in sales and last year the figure was £25 million, 80% of which was made in recession-hit Europe.

The government has not been slow in having a finger in the pie. A recent £2.5 million joint venture called Tata-Elxsi, between Elxsi (20%), Tata (55%) and the Singapore government (25%) will soon be producing one of the world's fastest multiprocessor computers in Singapore. Elxsi California (set up by ex-IBM engineers) will provide the hardware technology, while Tata Group (India's largest

computer user) will supply technical and managerial personnel to run the manufacturing plant.

The new £500,000 computer can utilise up to eight central processing units working simultaneously with a speed of 20 million instructions per second and a main memory of 192 Mbytes. This is six times faster than the largest IBM mainframe computer and with a larger capacity.

With at least two CPUs working simultaneously - should one stop operating, another takes over - this feature makes it especially suitable for organisations requiring computers to operate round the

'Singapore will be the only place in Asia outside Japan to have the capability to produce silicon wafers.'

clock. All features considered, the performance ratio of the multiple CPU Tata-Elxsi computer is expected to be superior to any in the world. Prototypes are currently being tested in California.

The heavy investment and high technology required in computer manufacture mean that few local companies are able to venture into it. However, Orona Singapore, a £750,000 investment of the local Dove-Chem Group, has become

the first fully Singaporean-owned company to manufacture a portable microcomputer called Attache. But initially it will assemble only key modules such as the main PCB, power supply, keyboard and cathode ray display. The computer sells for \$4,500 in the US.

Two other computer manufacturers with a base in Singapore are Digital Equipment and Far East Computers, a subsidiary of India's Hindustan Computers. The latter assembles a £7,500 word processor called Abacus Secretary.

Other manufacturers of peripheral equipment include Data Recording Heads Co (UK), and Acton (US).

In anticipation of the computer boom, several multinational subsidiaries in the electronics industry have chosen Singapore as a site to assemble and test large scale integrated circuits including 64K dynamic RAMs.

Siemens of West Germany has started production pegged at 20,000 for its own consumption while National Semiconductor plans to manufacture about 200,000 units a month for the world market.

The prize of the lot is the £15 million wafer fabrication plant to be built by the Italian electronics giant SGS-Atea. When it comes on stream in 1983, Singapore would be the only place in Asia (outside Japan) to have the capability to produce silicon wafers.

A common aspect of computerisation of industry on the island: the computerised stock control systems which have been introduced in many firms. A new and more sophisticated area is Computer-Aided Design and Manufacture. Philips Singapore has installed a CAD system from the US Computer Vision Corp at its audio factory and plans to bring more original design work from Europe. The latter also plans to start a time sharing CAD system for small companies on a basis in South-east Asia to be based in Singapore. The system suitable for mechanical drafting PCB layout and IC design, structural design and plant layout.

Many experts believe that Singapore's intense and well organised attempt to computerise will be her to achieve her industrial financial government. With a stable and efficient government, lower cost business sector, lower cost worldwide communication and extended and varied international banking system, Singapore could outdo Hong Kong as the "Zoo of the Far East" - and may Asian financial centre dealing with Asian dollar market, loan syndication and management.

Upgraded and computerised manufacturing and service sector will see Singapore confident through the 1980s with an average comfortable 10% real annual growth rate.



SINGAPORE... Three-year computerisation programme.

9,000 DP people needed by 1990

RAPID expansion of the computer services industry in Singapore has created a severe shortage of computer personnel, estimated at 1,000. The result: rampant job-hopping and a spiralling wage scale for the industry.

Recent estimates indicate that if the present trend goes unchecked, there may be a shortfall of up to 9,000 by 1990.

To make matters worse, presently 35% of the 1,000 data processing staff in Singapore are attached to either the Ministry of Defence System and Computer Organisation, the National Computer Board or the government's own software house, Singapore Computer System.

As a short term measure, the government has recruited 300 Asian graduates from the UK, Australia and New Zealand. It also offers computer science annual scholarships at some of the top universities in the West worth up to £9,000: Cambridge, London and Manchester (UK), Harvard,

Yale, Cornell and UCLA (US); and Alberta, McGill and Waterloo (Canada).

The National University of Singapore has expanded its computer science department to cater for the enlarged student intake.

The government has also carried out a three-pronged attack to tackle the long-term shortage. From the Sixties joint technical training schemes with the various multinational corporations - Philips, Rollei (now in liquidation), and Tata - the government has graduated to form joint venture training institutes with foreign governments. This provides greater resources and access to higher forms of expertise that are normally beyond the scope of a company.

The Japan-Singapore Institute of Software Technology (JSIST) is a joint venture project to train up professionals to form the future core of software manpower.

On the hardware side, in collaboration with the French govern-

ment, the government has set up the French-Singapore Institute of Electronic Technology (FSIET) to produce skilled electronics technicians. Even the mechanical and production side of computers is given a boost through the German-Singapore Institute of Production Technology (GSIPT). Based on the German system of technical training, this teaching factory will introduce more advanced expertise.

Other attempts to bring a greater awareness of computers take place at community centres, some companies and government departments. Apple, for instance, loaned computers for staff to use at home.

On a less generous level, top civil servants are given 5% low interest loans of up to £1,500 to buy computers for use at home.

But the greatest impact will be felt at the school level, when by the end of 1982 the target of four computer science teachers and three microcomputers in each of the 171

secondary schools should have been achieved.

Singapore's trade unions have been renowned for their "responsibility". There were only 10 strikes in 1976, none in 1977, 1979, and only one in 1980. One of the two industrial arbitration courts was closed down for lack of business.

On the issue of computerisation and the possibility of job loss, unions have, unlike their counterparts, adopted the attitude of "If you can't beat them, join them". The National Trade Union Congress (equivalent of the TUC) has set up small local training classes close to homes to acquaint them with computers. This is to prepare for anticipated widespread use of computers in the manufacturing and service sectors.

In full employment unions have little difficulty in convincing workers to accept the computer simply as a useful tool and not a threat to their livelihood.

SOFTWARE BRIEF

UCL sets up software division

SYSTEMS house Universal Computers Limited (UCL) has formed a software division to market its library of application packages for the Pick operating system, running on UCL's Ultimate range of minicomputers.

The software division is to co-ordinate the marketing of packages developed by specialist software houses and provide support for Pick and its utilities, such as the Recall report generator.

Sales profile

MARKETING services division of Dun & Bradstreet has launched Dun's Executive File, a confidential marketing statistics programme service for clients. By matching clients' information on their customers to the D&B database of industrial information on 200,000 active UK companies, a profile of potential and actual purchasers can be built up for use in devising sales strategies.

Digital deal

UNDER a co-operative marketing agreement, Digital Equipment Corp (DEC) is to distribute Mern Focus system software products through its OEMs and direct sales force. Among products to be offered for the Professional 325 and 350 16-bit microcomputers are MicroFocus' Level II Cobol, and interactive programming tools Animator, Slideshow and Forms-2.

SOFTWARE FILE



TRUEMAN... "Salesmen have to be higher calibre."

Cost reporting

AIMING at engineering managers and cost accountants involved in government contracts, ADP Network Services has launched a cost reporting system for project managers. Called Costtrak, it produces a wide range of reports including work breakdown structures, showing the project's schedule and cost variances, manpower loading, and a summary of cost/schedule status.

Fast access

CROYDON-based software house Spider Software has launched a database management package for the Apple II microcomputer which, it claims, offers a retrieval time of three seconds on a primary index search. Called Access, the system requires an Apple II system with 48K of memory and two disc drives, and costs £199.95 including VAT.

'Grown-up' market calls for sharper, higher calibre salesmanship

THE software market has grown up, and sales techniques must become more subtle and sophisticated to penetrate it. This was the message from Ken Trueman, director of RTZ Computer Services of Bristol, at a presentation to members of the Computing Services Association at a seminar last week on profitable software selling.

"Products have to be better because the market is now more sophisticated, and salesmen have to be higher calibre, as well as sharper and more professional," he said. While Trueman's comments were addressed to those who sell software, purchasers of software would do well to be aware of the techniques used upon them.

Outlining each step of the sales cycle, he emphasised that selling a product such as high value financial software, which has a sale lead time of up to six months, the salesman must constantly evaluate the likelihood of his success, to avoid wasting time and money.

Correct identification of the parties involved on the purchaser's side, particularly of the ultimate decision-maker he considered essential for application of pressure to close the sale.

Trueman emphasised that the salesman must restrain himself from telling the client everything about the product too early in the sales cycle, otherwise he would lose the opportunity to keep in

touch and the means of finding out how the opposition was doing.

He proposed that bridges for communication should be established between the vendor's and purchaser's companies, to ensure that sources of information were tapped at the highest and lowest levels, to provide maximum feedback for the salesman.

"Show the client the computer room," he suggested. "Although computers look pretty boring, they represent an awful lot of money."

The same principle should also be applied to the customer's particular areas of interest: if he was concerned about future developments, he should be shown the development team busily coding, even if the product was not due to be launched for 18 months.

"Don't give user visits until a short-list has been drawn up, because the prospective client won't know what questions to ask and a constant flow of uninformed visitors may spoil the user base," he advised.

Closing the deal, which was rarely the job of the salesman, as it was a waste of his time when contractual details were normally decided by management, was the time for pressure on the potential user.

Among the "carrot" incentives that could be used were special functions such as user group meetings or product-related seminars, but Trueman favoured "stick" incentives with penalties for not

signing now, such as an impending price rise, extended deliveries or heavily-booked training courses.

On the subject of salesmen themselves, Trueman said he expected over £400,000 worth of business to be brought in by each of his general ledger salesmen per year, although Elwyn Wareham, production manager of Systems Designers Ltd put the figure at between £30-40,000.

Wareham, speaking on sales organisation, said that a good rule of thumb was that the salesman should generate a minimum of three times his cost to keep in profit.

He also emphasised the need for constant feedback of information, and outlined the precarious nature of the software product sales manager's job.

"Software products are unlike almost any other product being sold in that their design costs are very high while their reproduction costs are negligible," explained Wareham. "The effect of this is that extra sales go almost directly on to the bottom line: unfortunately the converse is also true, that shortage of sales means an equivalent shortage of profit."

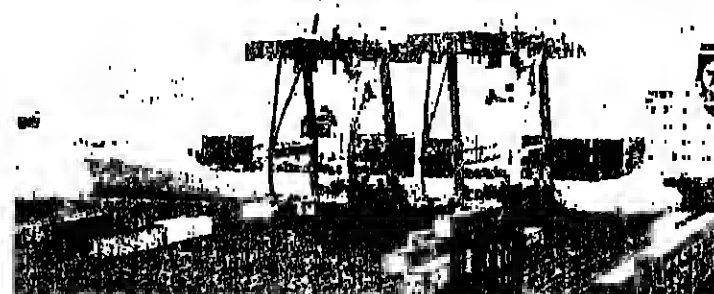
Colin Buntfield, sales manager of Logica, examined terms and pricing policies relative to the licensing or leasing arrangement. He estimated that the proportion of costs expended on the sales and marketing operation could be as high as 40% in a typical company.

Package aimed at exporters

A MICRO system aimed at an estimated 20,000 active UK exporters will be available at the end of June from the Simplification of International Trade Procedures Board (SITPRO).

Funded by the government, SITPRO was set up to establish common standards of export documentation for international trade, and to supply information for the design and implementation of application packages relating to export. Its launch of a micro-based export consignment processing and invoicing system fills a gap at the lower end of the market, where demand is increasing.

Called Spex, the package caters for "m-m" (roll-on, roll-off ferry),



The Spex system provides export documentation.

deep sea, air and postal shipments, and can be used by almost any company or industry. It is menu-driven to aid the first-time user, and data may be extracted from disc files holding information on consignees, freight forwarders, products or declarations, to save keying-in time.

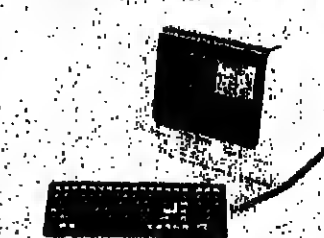
Information is held on a con- signment record, from which documents for invoicing, surface and air transport, parcel post and Customs clearance can be generated. The data can be output to disc for reformating.

Written in CIS Cobol, Spex runs on any microcomputer supporting the CP/M or CPM 86 operating systems, and any others with CIS Cobol compilers. It costs between £250 and £300 to end users.

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COMPANY NEWS

Zygal is still dynamic

DESPITE City nervousness over some of the recent launches on the Stock Exchange's Unlisted Securities Market, Zygal Dynamics has produced a 27% rise in profits for the year ended March 1982. Turnover at Bicester-based Zygal rose 42% to £2.84 million.

According to Zygal director John Maclean, the company has invested heavily during the year in plant and inventories to support new distributorships with Digital Equipment and Fujitsu.

Despite this increased expenditure Zygal added £68,000 to last year's £252,000 to produce a final profit of £320,000 for 1981/2. This makes the company one of the better performers on the USM.

Maclean says that the full effect of the DEC and Fujitsu deals has not yet been felt by the company. Commenting on reaction to a slip in the half-year figures from the 1980/81 level of £163,000 to £116,000, Maclean said that the first half of last year had been exceptionally good and this year's first half exhibited the effects of the build-up of stock and staff for the additional distributorships.

Zygal's main business is still with its original Diablo distributorship, but the widening of the product range with the inclusion of DEC and Fujitsu is seen as a move to strengthen the company by diversification.

When the company floated its shares on the Unlisted Securities Market last year there was some criticism in financial circles about the "thinness" of its trading base and its dependence on the Diablo distributorship.

Despite the very good results the shares have moved very little, and are still hovering just below last year's placing price of 78p, reflecting continued investor caution until the new products are seen to produce results.

INVESTMENT planning and production in Japan are done on a long-term basis. And all the long-term planning hinges on the Fifth Generation project.

In a report on the Japanese computer industry, part of which was reviewed in these pages last week, Alex Stewart, a consultant with stockbrokers Henderson Crosthwaite, quotes an American company president.

"The companies that do a good job and perform well are going to prosper over the long term, not the short term. Many companies make trade-offs in the short run versus the long run, and this is not something that comes easily, I know, but I want to encourage you to look at the long term because that's where the real money is."

The idea that short-term profit-seeking is self-defeating is hardly revolutionary, but it is vital to Stewart's context. His report is intended primarily as a guide to investors and financiers, many of whom, especially in the UK, have become mesmerised by the lightning success of American companies like Apple and Osborne.

Stewart says Japan's Fifth Generation Project is creating the commercial and technical environment in which the Japanese computer industry will work for the next five to ten years.

The Japanese company best poised to benefit from the changes which the implementation of the Fifth Generation will bring is NEC (Nippon Electric Company), says Stewart.

This may come as a surprise to those who are familiar with the view that Fujitsu is the technological leader. But Stewart says that NEC has provided the prototype strategy for all the other companies he reviews, including Fujitsu.

NEC was the first to understand

the importance of a stable supply of proprietary integrated circuits and the mating instinct of the digital signal. As a result it has been able to achieve leadership in both semiconductors and office automation equipment, he says.

The company is by far the biggest microcomputer supplier in Japan, with some 28% of the total market for small business systems. Stewart says that NEC maintains an extremely aggressive investment programme, which pays scant attention to the return on the bottom line.

Stewart identifies Fujitsu as the second most likely company to benefit from the Fifth Generation plan. But Fujitsu has been slower than arch-rival NEC to integrate and market integrated office systems, he says.

Fujitsu is a smaller company in every activity but mainframes, and Stewart observes, has sought extra leverage from a series of OEM deals based on IBM compat-

ible hardware (including a very important deal with ICL).

Taking on IBM is the calculated risk to which the company has exposed itself, playing on its advanced chip designs.

Its other strength is marketing, which shows particularly in small systems and personal computers. Stewart says that Fujitsu is particularly conscious of market forces, witness its ambitious deals with Amdahl, Siemens and ICL, in addition to its joint ventures with TRW in the States and Matsushita at home in the small systems field.

But the emphasis in most of the deals on selling larger machines leaves Fujitsu behind companies like NEC, Melco (Mitsubishi) and Toshiba in small business systems. Stewart says Fujitsu should remedy this deficiency when its office automation factory is in production next year.

Not surprisingly, Stewart's third choice to reap top rewards from the Fifth Generation is Hitachi. This company is one of the leaders in the race to develop a supercomputer based on fourth generation architecture, he says.

Looking at Hitachi's long-term strategy, Stewart says that more than its other Japanese rivals, Hitachi has sought to take market share from IBM by duplication and replacement. The vulnerability of this strategy was exposed when its former OEM customer in the US, Intel, went under in the wake of IBM's 4300 model launch.

According to Stewart, the emphasis on pursuing IBM has brought benefits in the shape of highly advanced hardware. Hitachi clearly wishes to establish a better balance between its semiconductor based mainframe business and the new markets opening up for small business systems and microprocessor applications, Stewart says.

He summarises his view of Hitachi with the charming observation that the company chews steadily away at IBM's market, while developments elsewhere are threatening to "make such behavioural instincts extinct".

Hitachi chews steadily away at IBM's market.

developments elsewhere are threatening to "make such behavioural instincts extinct".

by Kevin Cahill

HITAC

FORMATION

Lambart Computing

JJM275V URR 1

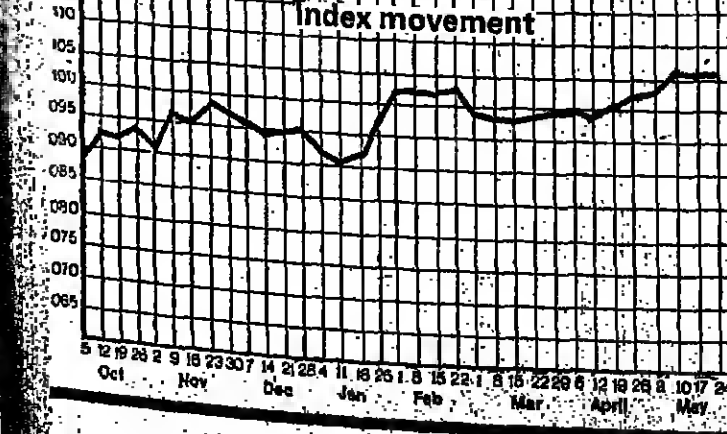
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The table shows the closing prices in London on Tuesday and in America on Monday. The Share Index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.

*Shares traded on the Unlisted Securities Market or under Rule 163(2)(a).



ONE way to advertise your success is to buy a Rolls Royce, or Gordon Lamond and Chee Bartram of Lambart Computing have done.

Their company, a systems house specialising in turkey projects, which was set up in a back bedroom three years ago, reached £5 million turnover this year. They have opened offices in Los Angeles and New

York, and have extensive marketing and sales in the Middle East.

But success did not come easily. Lamond says that even three years ago, some computer suppliers would prefer to lose business rather than sell equipment to system houses who were, like Lambart, supplying "foreign" peripherals and software.

Lamond had to put in some very

late nights and produce very sophisticated software before the mainframe suppliers took it seriously. But it was worth it.

To assist other would-be entrepreneurs in setting out on the same trail as Lamond and Bartram, and to help make initial financing easier, Computer Weekly and Barclays Bank are running a special conference on June

17 at the Royal Garden Hotel in Kensington, London.

Called First Time Financing, the conference is aimed at the early days of running their own company. Further details from Sue Bonnell, IPC Conferences, Surrey House, Throesley Way, Sutton, Surrey. Tel: 01-661 8040.

There has always been one big problem with the General Electric TermiNet 2000 series matrix printers from Zygal. It's not that they're a new breed of matrix printers, so advanced, so functional that's the problem. Their reliability has never been questioned. It's true that they are very quiet in operation, easy-to-use, easy-to-carry. The sleek clean lines complement all decors. Fewer moving parts. A choice of 60cps and 150cps models in either keyboard or receive-only configurations. Each with higher print quality, including descenders and underline.

So, what has been the problem? Cost. Considering their performance, the TermiNet 2000 series matrix printers from Zygal have always been excellent value. But, now, they are available at around the same price as other more basic printers. But only from Zygal. And not for long. Send off the coupon.

Please send me: Further details on TermiNet 2000 series ☐ Details of other products from Zygal ☐

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CW65

State the goals, not your ideas for a solution

TECHNIQUES are the optional methods, products, ideas and structures which we design into the system exclusively for the purpose of meeting one or more attribute goals.

Sometimes people make use of techniques in order to express their goals. This habit of communication can have the undesirable effect of binding the designer to the technique rather than the real goals which someone intended to express.

This "misuse" of techniques ("I want a computerized system for production planning") rather than the intended goals ("Yes, well what I really want is a faster, more accurate and more integrated production planning system than I have today") is partly due to ignorance.

We may be ignorant of the dangers of binding the people who are going to find us answers ("techniques") to the answers we assume. Perhaps wrongly, to be the best ones for us.

We may not be aware of an alternative language in which we can directly express our real needs (like a formal measurable system attribute specification language).

Let me therefore state some corollary principles to the Fourth:

1. If you want the best possible solution, then state your goals, not

your idea of how to solve your problem.

2. If you do state your goals in the form of a technique or technical solution, you will probably end up with a solution like that technique; even if it does not solve your problem.

If it does not solve your problem, then you have mainly yourself to blame.

We need to give explicit instructions to our design team, or problem solving team or experts, rather along these lines: "I don't want you people bound to the solution areas which my limited technical competence might accidentally suggest to you. I want the problem solved in the best and most imaginative way possible."

"I don't really care how unusual the solution may seem. I want the solution or solutions (there may be more than one, and we wouldn't want the design team to miss that point either) that best satisfy the goals I have stated."

There are an incredible amount of combinations of solutions to almost any problem. Our designers need to be free to pull together good sets of them. They need to be free of executive interference in their special area of expertise.

There is an incredible amount of new technology, both hardware and in terms of organisational ideas, which can be applied as so-



Tom Gilb is an independent consultant and author on computing topics.

lutions to your problem. The rate of change and increase in this solution area is overwhelming.

You, probably don't know the best solution area, if you are the boss, even if you were a technical expert in the area a few years ago. And, initially, your own design team most probably do not have a final or a correct idea about the best set of solutions which you can possibly get at this time.

What you want to do therefore is to make sure that they will be free to scout the professional knowledge area in search of good solutions. Don't tie them down; free them to be creative in solving your problems.

Not only "don't tie them down" but make sure that they have the criteria (a well-formulated attribute goal specification) for recognising a really good solution when they bump into it.

And let them know that they can freely suggest "radical" ideas, when these ideas clearly meet your specified result (attribute) goals.

Tom Gilb

HUMAN TOUCH

When all is not what it seems

A SYSTEM in the context of a program product is an abstract concept. You cannot see a system, but you can see a system working.

Purchasing an abstraction requires a mental agility that salesmen cannot expect their customers to possess, so they resort to a demonstration of the system working. And demonstration of system working has to be done in all the words implied. A demonstration is that it will not be the complete system. Working in the sense that any failure merely indicates that the salesman has not organised things properly.

The corollary is that there are parts of the system that have not been seen working.

The salesman is in charge of a demonstration. He decides what will be demonstrated, where it will take place and often what data should be used. The demonstration team should have been rehearsed again and again so that they don't have to think what they are doing while they keep up the patter with the prospective customers.

It is convincing but quite unnecessary for the normal production programs to be used for a demonstration. If the options in the production programs not required are removed then the programs will probably operate more quickly and may well run on a smaller machine.

Everything you see at a demonstration may not be what it seems. If the first thing a demonstrator does is to enter your company name to appear on output, do not

Cliff Dillaway



Cliff Dillaway is an independent consultant specialising in organising software, taxation and payroll.

assume just because that is what happens that he did so. A sensible salesman would have entered your name the day before and checked it out before ever you arrived.

Your demonstration will go through a number of stages, one leading on to another. Probably what you see is starting off fresh at each stage rather than using the data just created at the previous stage.

These demonstration techniques are not intended to deceive. The demonstration is intended to put flesh on the verbal explanations, the pictures and the brochures. Slip-ups, finger trouble and anything that can go wrong are just about the norm of every "first-time" on a computer.

The rehearsal, etc, are to provide the routine of a run-in system so that the viewer can actually learn something of the product.

Proving that things can go wrong is a fool's game, so remember that a demonstration is what that word implies: a demonstration.

Cliff Dillaway

FOCUS

Running out of control

CONTRARY to popular (and in book) belief, computer selection procedures are seldom limited to technologies. Weighted evaluation points are increasingly being scored on such matters as the financial track record of the suppliers, their R&D capabilities and their local and national presence.

Maps and balance sheets are playing an important role in selection. The DP selection team must take note not only of future enhancement paths but the local route map. User installations in Portsmouth, for example, would be encouraged by both the local supplier and company management to choose and support IBM.

And Putney users could hardly fail to take note of the presence of ICL, especially if their daily routine involved driving across Putney Bridge in the rush hour.

On a nationwide selection basis, IBM would be the first choice of employers in the UK computer industry. Burroughs, Honeywell and NCR would mention that they support large-scale UK manufacturing bases, while Unisys might be expected to restate its extensive R&D development facilities in the UK.

Senior management now expects the DP selection team to include financial assessment of the competing suppliers. Company management has been known to refuse its approval for the selection until data covering the long-term viability of all the contenders is supplied.

If the DP team is to retain its selection powers, then its approach to computer selection procedures must change. Less weighted points should be extended to hardware characteristics and performance, mips differentials and terminal modularities, with more weight allocated to user-friendly systems and office automation interfacing equipment.

In any case, many computer evaluation studies are now out of control. Selection panels total 11 or more individuals representing all DP areas and activities.

Timescales are measured in months rather than weeks and in the case of State organisations often exceed 2,000 man-hours of involvement.

Presenting such elaborate reports to management serves only to underline the belief that the DP team is both out of its mind and depth.

Blowing the chief executive's mind with reams of technical data and statistics could well blow the DP team's job, especially as, in many cases, the production of extensive reports serves only to cover the initial prejudice of the inner selection team.

Anything more lavish than a single screen full of data is suspect and suggests that the DP team has not been able to evaluate the data wood from the data trees. A short, snappy report expressing confidence — the DP team in its selection, the supplier in its ability to deliver the goods, and the selection managers that they will spend minimal time on the project.

If such confidence is lacking, then company management will have little option but to bring in an independent consultant to assist the selection procedures.

Given the complexities of the computer selection exercise, outside assistance could be both inevitable and desirable for all concerned.

Alan Smith

Computer Weekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 6AS

Thursday, June 3, 1982

IBM's reputation is at stake

IBM's attempts to control the introduction of its Personal Computer into the UK market have failed miserably.

Companies in the UK have shown they will go to extraordinary lengths to get their hands on the machine.

Officially, IBM has refused to acknowledge the demand. But because unofficial operators with an eye to opportunity continue to assume responsibility for marketing the IBM micro, IBM's own reputation is at risk. IBM is being dragged in whether it likes it or not.

Microcomputerland was the first UK company to announce that it had got round IBM restrictions on exports from the US of the Personal Computer. Microcomputerland has since fragmented into offshoots, Microland and Microcomputersource. While Microcomputerland continues to trade, Microland, under the direction of ex-sales director Doug Mudie, claims to have taken with it the original middlemen suppliers to Microcomputerland.

Meanwhile, Microcomputersource, a dormant company initially set up by Microcomputerland and recently sold off to two ex-members of staff, has emphasised that it is quite independent from Microcomputerland and gets its IBM Personal Computers from a different source.

□ □ □ □

Other self-appointed distributors for the IBM Personal Computer include KGB Micros and Northamber. Most offer add-on memory and peripherals, including Winchester hard disc drives, which brings to mind IBM's early competitive battles with the plug-compatible peripheral manufacturers.

To customers buying from such operators, the name IBM will be the one which sticks in their minds. If these customers get their fingers burnt because of a petty squabble between small businessmen setting themselves up as unofficial distributors, or because a peripheral packs up, it is IBM they will look to for arbitration.

IBM's official position is that it does not want to put a product on the market which it cannot support.

Unofficially, it looks as though IBM is releasing its grip on those US suppliers who allow IBM machines which have passed through their books to find their way into the UK market, either unintentionally or deliberately by setting up strings of companies to buy and sell the machines.

The company is facing problems similar to those which rocked Apple with its European distributorship fiasco a few years ago, when nobody knew who the official Apple distributor was.

□ □ □ □

When the Personal Computer was released last year, there were great expectations that the market would be legitimised. To some extent that has proved true. Many of the companies which have so avidly sought the machine in the UK are big corporations which are keen to see if the IBM label will meet their future requirements.

But by leaving UK "distribution" — "test marketing" may be a more apt description — to any company which has the enterprise to import the machine into the UK, IBM has been caught in the seamy side of the personal computer market.

IBM finds itself with these UK problems because it cannot manufacture sufficient supplies to meet worldwide demand. It tried to skirt the problem by restricting the product's release to the US. But it should be possible to step up production, even if the price is high.

In the meantime, while it may not be able to control the actions of unofficial distributors, it cannot ignore the fact that the demand for its Personal Computer is there and being met by non-IBM sources. IBM, to support its reputation, should consider making available in the UK the necessary support staff for the product. It may not be the way IBM planned it, and it may not be as profitable as the company would have wanted it to be, but it will save it some embarrassment.

It is now time for IBM to announce the Personal Computer in the UK and put an end to this confusing situation.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Tony Orme, of Aldershot, who wins £5.

Mr Pearce and the other shop stewards have already had a crash course in computer programming. "It's a piece of cake," he said. "It's as easy as playing a TV game like Space Invaders."

LETTERS

Keep the patient alive

SOFTWARE File (CW, May 20) is quite right to say that software houses will be making a killing on payroll packages. However, there is an incipient symptom that may well turn on them in statutory sick pay.

Statutory sick pay comes into effect in April 1983. Anyone buying a payroll package today would be foolish not to require that they receive the necessary enhancements in good time and free of charge.

The detailed requirements for statutory sick pay will not be published until July. The computer requirements will be non-trivial. It

may be difficult to fit those requirements into the available program space in memory or for the extra file data to be stored on disc.

Calculating and keeping track of statutory sick pay (it may be recovered against NI contributions) will be such a chore that software houses will eventually benefit enormously. In the meantime users and suppliers need to take care that remedial treatment can be provided that will keep the patient alive and working.

CLIFF DILLAWAY
Stroud,
Gloucestershire

Micro ledger 'cowboys'

CHRIS YUETT's comments on micro ledgers made by cowboys (CW, May 13) strike some chords with us.

In pursuit of the micro market and offering a turnkey on equipment, systems and support we encounter two or three situations every month involving confused and angry would-be users — "would-be" in the sense that they have bought kit and standard packages normally very cheaply and have failed to get systems up and running.

This is due in part to limitations of the package but also from a total lack of support and "hand holding" in the important early stages.

In the important small business market our industry must realise the importance of strong systems and close personal attention to customers' needs. It costs — but the result is satisfaction, a good reference, and a continuing association with the client in succeeding years.

J. R. ALLT
Managing director
Team Computer Services,
Leicester

Polytechnic courses

ON Programmers Page (CW April 15) Philip Hunter stated incorrectly that the Polytechnic of North London provides no courses in computer science as such. This may be true of the Polytechnic of North London Computing Service (of which Peter Jeffrey is the head), but does not apply to the department of Mathematics, Statistics and Computing (the head of department being Dr Goodwin).

Just to put the record straight, this Polytechnic does run a wide variety of courses in computing. These include a Post-Graduate Diploma in applications of com-

puting, a modular BSc scheme in which one can study computing plus either mathematics or statistics or some other discipline, and a two-year full-time Higher National Diploma in mathematics, statistics and computing.

In addition we run a range of short evening courses in computing on topics such as computer appreciation, microprocessors, C++, Pascal, Fortran, C, Simula, Basic, Further Basic and systems analysis.

CYRIL DRIMER
Department of Mathematics,
Polytechnic of North London

Don't give the answers

FOR crying-out-loud, can you please stop publishing the answers to problems in the Adventure game for computers.

The whole point of the game is that it poses problems which are difficult to solve. If the answer is known to any one of the problems before the problem is encountered, the enjoyment derived from solving that problem is forever lost.

People have created a tradition of not rattling on whodunnit in Agatha Christie's Mousetrap and other plays and stories of the same nature.

Until your publication began hurrying out the answers the same tradition was observable in respect of Adventure-type computer games.

The original programmers of the Adventure game, Willie Crowther, Don Woods, Kent Blackett and Bob Supnik freely gave their creativity for the enjoyment of others: Your paper is doing the equivalent of using razors to slash old-masters' paintings.

BILL WILLIAMS
Data Highway Ltd,
London, N10

Teaching of computing

THE juxtaposition of my photo and the caption "New languages could make Ada obsolete," says European survey" (Programmers Page CW, May 13) gives the impression that the statement came from me, although of course the article reveals otherwise.

You also misquoted me a bit regarding the teaching of computing science at schools. I actually said that, if computing science is to be taught at school then children going into science should be taught something like Pascal which builds on set theory rather than Basic which is not well disciplined.

J. G. P. BARNES
SPL International,
Abingdon,
Oxfordshire

Scots' micro education

DAVID HEARST wrote (CW, May 6) about the history and problems of the Scottish Microelectronics Development Programme. While I would agree with much of what was said, I feel that it creates a false picture of the overall state of educational computing in Scotland since SMDP is only one element of the total network.

Indeed, most of the problems which have been described have arisen because SMDP has been expected to be all things to all men. In Scotland, as well as in England and Wales, the central agencies may encourage and monitor changes in education, but it is the local authorities which finance, initiate and control almost all the developments.

Local authorities have provided most of the hardware, facilities and manpower currently being used in the development of computing in their schools and colleges. This is not to supplement a lack of central provision, but because this development is seen as being a priority by the local education committee.

I therefore enclose an article describing the current situation in Scotland which I hope you will publish in an attempt to correct any misunderstandings created by Hearst's article. I have refrained as far as possible from adopting the

role of apologist for SMDP, because there have already been too many public arguments about the failings or otherwise of SMDP.

COLIN R. MACLEAN
Assistant adviser in
Microelectronic technology
Lothian Regional Council
Department of Education,
Edinburgh

Space permitting, it is hoped to publish the full text of MacLean's article at a later date. — Editor.

D. PARKINSON
Computer Centre
Queen Mary College
London

Faster even than Cray-2

I WAS amused to read the front page article entitled "Fastest Computer in the World" (CW, April 22).

Users of the 64 x 64 DAP (Distributed Array Processor) here at QMC have measured performance of up to six times the Cray-1. So even if the Cray-2 materialises, it will not overtake the current performance of the DAP!

D. PARKINSON
Computer Centre
Queen Mary College
London

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DOWNTIME

Land of the Rising IQ

THE average IQ of the Japanese has risen to 111, compared with about 100 in Britain, the US and other industrialised nations, according to a survey published in Nature magazine.

Even more worrying for us, because of its implications for the computer industry, is the corollary statistic that 10% of the Japanese own IQs over 130, against a mere 2% in the UK.

As well as gaining intelligence the Japanese have been producing heavier babies, and growing taller. The gain in height is said to be

entirely due to an increase in leg length with body length remaining the same.

Some Japanese attribute this body distortion to the adoption of Western postures, like the upright seating position.

They believe the traditional cross-legged squat on the floor inhibited leg development, or encouraged a long body by forcing the back to grow straight.

Probably nostalgic nonsense. But it leads to the hope that perhaps this frightening explosion of IQ is also lopsided.

Tender world of EEC

ONE of Computer Weekly's recent news items told of an EEC tender competition for the feasibility study leading to a database on EEC regulations. The same story went on to tell of a London-based private viewdata system which was providing details of invitations to tender from EEC countries.

Naturally enough, this led one of our readers to call the second about the first.

Perhaps I should clarify that. The reader thought that if he called the viewdata system operator, he would be able to get the details of the regulations database project and find out where to submit his bid.

No such luck. The database study was not one of the tender competitions listed.

There was a logical explanation. The EEC tender competitions are taken from the EEC Journal

Supplement S, which deals with public works contracts from member countries whereas the database study is a research project from the EEC Commission itself, details of which appear in Supplement C, the vehicle for information on scientific research and applied technology projects. Still with me?

Perhaps somebody would care to follow the example of the London firm and put the EEC's scientific and technical information on a viewdata system. The last of the three sets of supplements to the Journal deals with legislation and that, presumably, is to be taken care of by the database that will result from the study.

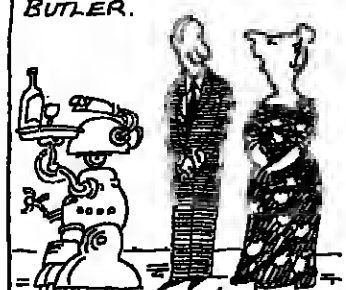
It is interesting that Supplement S is mailed to subscribers daily from Brussels for a charge of £61 a year. You will not be surprised to learn that the Commission is reluctant to market it energetically.

10 YEARS AGO

From Computer Weekly of June 1, 1972 . . .

To ensure jobs of employees at ICL's plant at Castlerigg, Belfast, a joint company was established by ICL and the Northern Ireland Ministry of Commerce to take over a factory producing punches, verifiers and keyboards . . . Use of the computer in education was boosted by a government programme of research and development in computer assisted learning.

IT'S EFFICIENT BUT IT CAN NEVER BE AS SERVICABLE AS A HUMAN BUTLER.



No more staff problems

VISITORS to the stately home Thurtham Hall, near Lancaster, may notice something unusual about their guide.

His dress is perhaps a trifle odd, consisting of the robes of an Elizabethan Cavalier. He talks rather hoarsely, but with clarity and precision. His audience hangs on his every word, delivered with motionless lips and inscrutable face.

I am told that some visitors have completed their tour of this stately home without realising that the earnest cavalier guiding them is, in fact, a robot.

Model image

AN advert for a car rental company features the profile of a man who is the spitting image of Blue Ken, our Information Technology Minister. Of course it may be the real Ken, since he seems to have so many fingers in so many pies.

Perhaps because of his wide range of extra-curricular activities, Baker has recently been awarded a new Under-Secretary of State for Industry. He is John Butcher, one of the few MPs to receive largely favourable comment in Private Eye's "New Boys" column.

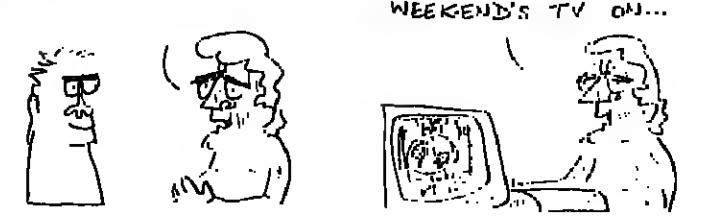
Chad

Alan Smith

Dep 4/1/74

Adventure File

I WAS AWAY FOR THE BANK HOLIDAY... SO I GOT THE CHIEF OP TO PROGRAM MY WEEKENDS TV ON...

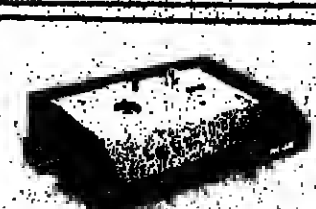


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University tests VDU guinea pigs in their natural environment

MY regular reader will no doubt be aware that I have often gone on at great length about the health aspects of working with VDUs and associated new technology. So when I received an invitation from the British Computer Society to sit in on a meeting of the displays group, entitled "Where do you put your coffee?", I felt obliged to attend.

Two of the speakers, Peter Howarth and Howell Istance of the Institute of Consumer Ergonomics at the University of Loughborough, are currently involved in a survey to identify what problems office automation introduces. Over 200 subjects at six sites using

VDUs and six with conventional office equipment are being tested for both eye problems and physical discomfort for a complete working week.

By means of both physical tests and questionnaires, Howarth and Istance hope to highlight the differences between the two working environments. Different job types will also be investigated; as Istance says: "The time spent looking at a VDU varies greatly with the type of work being carried out - audio typists using a word processor spend more time looking at the display than do copy typists."

He claims that this is one of the critical points often overlooked

when investigating VDU-related health problems. Another difficulty lies in the fact that there are many problem factors involved with the introduction of new technology and the humble VDU is only one of them.

"Computer systems introduce change, not VDUs," says Istance. The Loughborough survey will investigate such parameters as the general level of office lighting, the amount of detail read from the screens, glare, reflections, noise and the office climate.

In addition to the comparisons drawn between the six conventional and six automated offices, a special study of workers who alternate between word processors and typewriters will be carried out. The subjects will provide unique data in that they form their own controls, enabling an accurate measurement to be made of the differences encountered between the two technologies.

Howarth claims that this survey will prove to be invaluable in that it involves subjects performing their normal jobs in their normal working location. Previous investigations have tended to be more laboratory-oriented, which may throw their results into question.

"The whole visual system must be measured," says Howarth.

"Not just the eye - the brain must be included - if you have your leg amputated you can often still experience an itchy toe. Perception lies in the brain, not the eyes or ears."

So what handy hints for comfortable use of VDUs came out of the meeting? One on which all the participants agreed was that in a multi-screen environment, all displays should be the same colour - eyestrain is more likely to result from the colour differences.

This must call into question the current trend for mainframe operators operating in glorious technicolour - any sufferers out there?

The golden rule to apply when using any VDU is that the character size should be at least nine hundredths of the eye-to-screen distance. One speaker announced that certain displays - stroke refresh, where the entire screen is repainted seven times a second - are the worst offenders when it comes to eyestrain and headaches.

"They quite often have a sticker on them which says 'Do not use this screen for more than three hours'."

All in all, an interesting meeting, but I still don't know where to put my coffee.



For Adventure-seekers

DESPITE the Dungeon Master's threat a few weeks ago to reduce me to a heap of ashes for helping you with your Adventure problems, here is another batch of questions. (Good lord, does this man know the meaning of fear? Ed.)

Bridget Harrison from Oxford asks how one returns from the island with all the treasure (sapphire, portrait, rug and ZS note), without sinking the beautiful green boat? Bridget is also concerned as to what (if anything) one does with the ZS note.

This sounds like an Adventure derivative - I don't remember an island in the version I used.

Now for something in which you can possibly help me. Several people have contacted me recently asking for a source for Adventure or Dungeon. I have also received offers of new versions.

Now, the people offering code could not cope with the flood of floppies which would no doubt descend on them were I to publish their names, and much as I'd like to admit it, I don't have access to a computer myself.

But with people offering the codes, and others wanting them, there is some way of bringing them together? Suggestions on a postcard please.

by Philip Hunter

No sausage-machine solution with coding

IT is still impossible to lay down the design for a large complex system, and have the computer generate the code and documentation. There are simple systems where a goal can be specified, a proverbial handle turned, and an algorithm produced, but these fall short of converting complex needs into detailed design.

A more likely path towards the automatic system builder lies in following the example of the data dictionaries, which provide the ability to build networks of information about a system.

One such system has recently been offered to its users by Sperry Univac. Developed for internal use only, it was later deemed safe and reliable enough for general consumption. Sperry claims that it is far more than a data dictionary, giving users the chance to match the requirements of a system with the realities of the detailed design algorithms in pseudo-code, the specification of parameters and the return of values by subprograms.

Before examining the strengths and shortcomings of Univac's new tool, it is worth looking at it in some detail.

It consists of a Requirements and Development Processor (RDP), and a language called RDL, which enable the design of a system to be built in a hierarchy of elements which refer to other elements at higher and lower levels.

As it is possible for more than one element at one level to refer to the same element in the next level up or down, networks can be created. Usually, however, RDL will be used to reflect the "top-down" design of a system starting with a single lead element and yielding a hierarchy.

The finished database can be updated by redefining an element, or can be interrogated to elicit information about an element. An example in the case of an element which relates to several subprograms might be the name of the group assigned to code it, and the number of man-days allocated.

The base can also be used to provide documentation. Each element can have a title specified, and a general description can be as long as the space available allows.

At the bottom of a hierarchy

comes the exposition of algorithms in pseudo-code, which can be incorporated in documentation. The element which includes the algorithm description can also provide information about its purpose.

This can be useful in making comparisons between the system as described in the database, and the fictitious system in the mind of the designer.

In fact, this is the chief virtue of RDL: it enables a specification to be verified. Clearly the system will not allow entries inconsistent with its axioms, like for example two elements each specifying the other on a lower level.

The system will provide some cross-reference, such as a list of subprograms or procedures that are affected by a particular algorithm or invoked by another subprogram.

So RDL allows a model of a system to be built, but does not offer any testing, or integration of code. Nor does it perform any automatic updating of elements affected by changes made elsewhere.

At least RDP makes no false claims, and is certainly a workmanlike tool for developing large systems involving much manpower.

For example, RDL does not provide detailed analysis of the progress of the project down to the last subprogram. All it can do at present is accept textual data of progress which can be updated, say, every week.

Still, the idea of linking all levels of system development is a good one. There is the prospect of automatic verification of each level of design, eventually culminating in the integration of programs into the whole system.

At the bottom of a hierarchy

PUZZLER
TWELVE
ELEVEN
SIXTY
SEVEN
NINETY

Given the fact that you can identify all ten of the numbers in this alphabetical number sum? See page 37 if baffled!

Sales team reshuffle at Storage Tech

THERE have been several substantial changes in sales and marketing at Storage Technology in the US.

The position of vice-president of world-wide marketing has been created, and is held by John Scott. He is replaced as vice-president of Western area operations for domestic sales by Daniel Ellis,

previously vice-president of marketing.

Former manager of product marketing Gary Holtwick has become division vice-president of productive marketing. James Preston has been elected an officer of the company by the board. His title of vice-president of Eastern area operations for domestic sales remains the same.

Zilog top men

ZILOG has appointed former Signetics general manager Fran De Weeger president and chief executive officer. He replaces Manny Fernandez, who left Zilog to form a new company.

De Weeger was director of materials at National Semiconductor in Santa Clara, California before joining Signetics in 1979. Before that he was a director of Motorola's semiconductor group.

Now, the people offering code could not cope with the flood of floppies which would no doubt descend on them were I to publish their names, and much as I'd like to admit it, I don't have access to a computer myself.

But with people offering the codes, and others wanting them, there is some way of bringing them together? Suggestions on a postcard please.

by Philip Hunter



CENTRONICS Europe vice-president Terry Harris raised over £2,000 for the Save the Children Fund when he successfully completed the London Marathon in 3 hours, 2 minutes, 2 seconds. It was something of an achievement for Harris, who had never run in a marathon before and who was labouring under the additional handicaps of an injured ankle and strained hamstrings. He was sponsored by a number of companies and individuals, including Centronics.

At least RDP makes no false claims, and is certainly a workmanlike tool for developing large systems involving much manpower.

For example, RDL does not provide detailed analysis of the progress of the project down to the last subprogram. All it can do at present is accept textual data of progress which can be updated, say, every week.

Still, the idea of linking all levels of system development is a good one. There is the prospect of automatic verification of each level of design, eventually culminating in the integration of programs into the whole system.

The finished database can be updated by redefining an element, or can be interrogated to elicit information about an element. An example in the case of an element which relates to several subprograms might be the name of the group assigned to code it, and the number of man-days allocated.

The base can also be used to provide documentation. Each element can have a title specified, and a general description can be as long as the space available allows.

At the bottom of a hierarchy

At the bottom of a hierarchy

chairman of British Telecom. BCS, Royal Society, London SW1. Details BCS external relations Dept.

JUNE 20
Visit to the Midland Railway Trust, BCS Nottingham Group. Details Ray Fowler on Nottingham 415415 ext 4725.

JUNE 23
Petnet and Pet computer network. BCS Sussex Microcomputer Group. Meeting Room, King and Queen, Marlborough Place, Brighton, 7.30.

JUNE 27-JULY 2
Computer-aided design of filter networks. Second IEE vacation school at University of Essex. Details IEE, 01-240 1871.

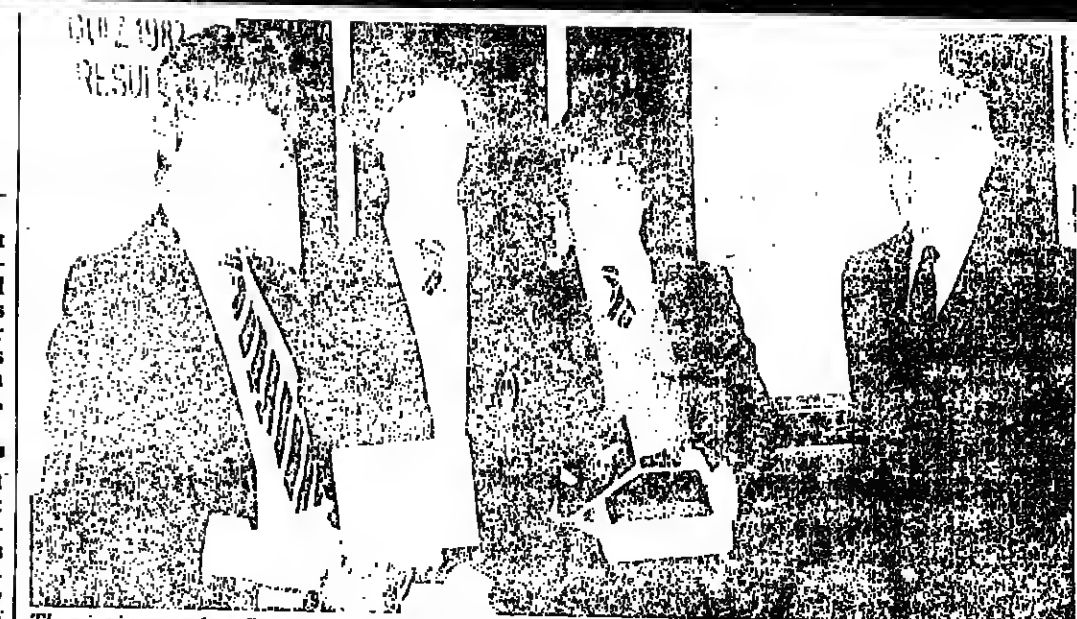
JUNE 28
Local area networks. BCS WPA/OSA/BB branch: United Reform Church, Small Hall, Addiscombe Grove, Croydon. Details Sandy Hathaway 66-35925.

At the bottom of a hierarchy

Midlands school quiz

TWENTY-ONE schools entered the West Midlands Computing Group's quiz competition this year, answering questions which ranged from "What is the name given to a single binary digit?" in "What is the name of a system of workstations connected to a central master computer and backing store?"

The contest was won by Bishop Vesey School, Birmingham, which received the IBM Schools Computing Cup, a cheque for £100 and a Sinclair ZX81. Team members - seen here with IBM schools liaison officer Norman Longworth: Stuart Cheshire, Nicholas Tingle and Andrew Jones - were awarded pensets from IBM and a book from IT82.



The winning team from Bishop Vesey School with Norman Longworth from IBM, who presented the prizes.

Jack Boardman has been appointed sales manager at RUT Business Equipment. He was formerly dealer sales manager at TEC (UK).

Philip Hamer has joined the defence systems equipment arm of Plessey as director of overseas operations. He was formerly defence electronics specialist consultant at PA Management Consultants.

John Coe has become a senior consultant with Reed, Stead, Morrell. He will specialise in VM, DOS/VSE and multiple 4300 environments. He was previously technical manager with P&O Computer Services.

Richard Price has been appointed an executive director of European Marketing Consultants. He was formerly communications manager at Nexos.

Martyn Collinson of Consultants (Computer and Financial) has been promoted from sales manager to marketing director.

Peter Boyce is sales support engineer for Engineering Computer Services, responsible for the area between London and Birmingham east of the M5. He was formerly an application engineer with Société Générale at Newport Pagnell.

Ian Hearn-Phillips has become European technical support manager for Winchester drive manufacturer Priam, and is based in Reading. He was previously with Tandon as international product support manager.

Tim Shears has joined MSA as a systems consultant, from Forest Accounting where he was senior accounting recruitment consultant.

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| REGIONAL STATUS | STATUTORY GRANTS | SELECTIVE ASSISTANCE (EMPLOYMENT) | SELECTIVE ASSISTANCE (OTHER FORMS) | EEC FUNDING | TAXATION EFFECT | NOTES |
|------------------------------|--|--|---|---|---|---|
| Special Dev. Area | 22%: Buildings Plant, Equipment | \$8,000 maximum per job created | Coal-fired Boiler Scheme | Up to 50% Loans for fixed investment | 100% 1st year allowance on plant | |
| Development Area | 15%: Buildings Plant, Equipment | \$5,000 maximum per job created | Product and Processor Development Scheme | Nil | | |
| Intermediate Area | Nil | \$2,500 max. per job created | Microprocessor Application Project | Up to 50% Loans for fixed investment | 79% first year followed by 4% p.a. on buildings except for small industrial (100%) | |
| Non-Assisted Area | Nil | Nil | Microelectronics Industry Support Programme | | | |
| Northern Ireland | 30-35%: Buildings Plant, Equipment | Negotiable with NID | Government factories (assisted areas) | ECSC funds where jobs are created in C and SC Areas | Grants in assisted areas do not reduce capital expenditure for tax relief except in NI when grant exceeds 45% | 10 years' rate-free minimal planning requirements |
| Coal and Steel Closure Areas | Dependent on whether area is SDA, DA, IDA or unassisted region | Depends on reg. status as statutory grants | Training Services | Dependent on status of area | | |
| Enterprise Zones | | | | | | |

Computer industry's vital role in injecting new life to London Docklands

FOR more than 30 years after the Second World War, successive governments confined their regional policy to the "problem" areas of the UK, where industrial decline had led to severe structural unemployment. Relative to the depressed areas of Tyneside and Merseyside, London and the South-east enjoyed full employment and required no positive assistance. Indeed, factory building within a large radius of London required an Industrial Development Certificate as a constraint on indiscriminate expansion.

It is ironic, therefore, that the most significant element in this government's regional strategy evolved from a speech on the London Docklands by Sir Geoffrey Howe when the Conservatives were in opposition. Introduced as a feature of the 1980 Budget speech, Enterprise Zones were conceived as a positive attempt at regenerating carefully defined areas.

In sharp contrast to the subsidies and grants available in more

traditional development areas, the assistance envisaged for the Enterprise Zones was to take the form of an abolition of planning restrictions and relief from local authority rates for ten years.

The existing priority areas have attracted their fair share of Enterprise Zones. There is one on Clydeside, one in Swansea and one in Hartlepool, for example, with a further eight zones taking shape throughout the UK.

Of these, the scheme developed for the Isle of Dogs is exceptional in that it is the first attempt by a government to attract new business into the South-east.

The London Docklands does not have the status of a development area, so that it cannot attract new business with conventional regional assistance. But the package of fiscal and planning incentives available to companies in any of the Enterprise Zones will have a marked effect on the future of London's East End.

Under the chairmanship of Nigel Brookes, the London Docklands Development Corporation is

the organisation with the daunting task of injecting new life into the area. It was set up ten months ago and will eventually take on the full powers of a new town development corporation. To that capacity, it was formally invited by the Department of the Environment last month to start procedures leading up to the creation of a 475-acre Enterprise Zone centred on the old West India and Millwall Docks.

The zone was officially designated in April and formally opened by Sir Geoffrey Howe on May 21.

There is little to suggest that the expanse of dock basins and dilapidated warehouses left vacant in 1980 will ever become a dynamic industrial centre. It is even less conceivable that the skills on offer from redundant London dockers could be fully utilised by companies moving on to the site. But reducing local unemployment is not the main objective of the Development Corporation.

For the area to regain and then sustain a stable economic base, it is vital that companies in growth in-



dustries are encouraged to move to the Docklands Enterprise Zone.

So often with "economic revival" plans, the influx of business to a development area falls below expectations. In the case of the Docklands scheme, the optimism of the Corporation is already being borne out by the range and strength of the companies which have applied to move on to the site.

The film studios of Southern Television, for example, will be relocated there and will provide a nucleus for a "cottage" video and recording industry.

In terms of the capital invest-

ment in the site, Telegraph Newspapers is perhaps the largest company involved in the project. It is estimated that close on £80 million will be involved by the time its site has been developed and the plant installed.

With severe unemployment among teenagers in Tower Hamlets, there is every possibility of bringing local people into ancillary jobs on the site.

To complement the commercial activity in the Enterprise Zone are plans for establishing a national indoor sports centre within the Isle of Dogs complex. This is just one of the proposals designed to prevent the area becoming another dull and uninspiring industrial estate. The docks basins are to be left intact, for example, with quayside development along the lines of St. Catherine's Dock.

For companies prepared to help develop the Isle of Dogs, the principal attraction must be the 100% write-off available on new buildings. Simplified planning procedures will greatly assist these firms and be an even greater incentive to the tier of smaller businesses needed to provide a balanced industrial profile for the area. It is envisaged that land for development will be available on long-term leases, either for a single premium, or financed through ground rent.

Central government curbs on local authority financing have been followed by sharp rises in rates. At a time when commercial rates

The rules of regional development policy keep changing under successive government administrations. In this four-page special report, DAVID CASEY highlights the various grants and development support schemes available from local and central government in four regions.

How changes in regional aid rules have held back Britain

LIKE the ball in a political tennis game between successive governments at Whitehall, regional policy has changed direction with monotonous regularity since the war. Not content with playing to a single set of rules, Ministers feel free to change the size of the court - and the scoring system - while the game is in progress.

While no government with an eye to the ballot box would admit this was true, constantly changing regional assistance programmes may actually serve to defeat the objective for which they were created. Yet the approach to regional aid is a key element in national economic strategy: for almost 40 years, complete regions have been constrained by their rate of growth.

By 1945, six years of military production had taken their toll on the industrial structure of Britain, accentuating the economic problems created a decade earlier. An apparent surge in industrial production concealed pockets within the national economy where output had declined and unemployment was again on the increase.

A system of grant aid for companies moving into these underprivileged regions was the Atlee government's response to the problem - a measure replaced largely by

tax allowances by the Conservative administration of 1951. Whatever the nature of the financial carrot, however, there was a corresponding stick to be wielded in Whitehall. Factory building in the economically stable London and South-east became subject to development permits designed to discourage major new projects.

Declining demand during the 1960s for shipbuilding, coal and steelmaking did little to stimulate development in the UK's assisted areas. More positive action, in the form of grants up to 45% of capital cost under the 1966 Labour government, immediately attracted companies to the priority regions, but created areas of economic blight in their wake.

On one side of the regional boundary business appeared to thrive, while only a few yards away, factories were idle for the lack of incentives.

Progressively graduating the assistance available to a region has helped to remove many of the anomalies of financial assistance, and is the vehicle used to fine-tune local economic conditions. Special Development Areas qualify for maximum assistance, attracting 22% capital grants for buildings,

new machinery and plant.

Until measures introduced by Sir Keith Joseph as Industry Secretary in July 1979 reduced the grant for basic Development Areas by 5%, to 15%, these locations were broadly comparable to SDA regions. Rather than increase the statutory aid to the SDAs, the policy of the present government has been to reduce the assistance elsewhere, increasing the margin of incentive.

Prior to 1979, Intermediate Areas - a band surrounding most Development and Special Development Areas - qualified for automatic capital grants, but this concession has been reduced progressively so that new investment after August 1982 receives no grant from central government.

All three classes of assisted area are still eligible for selective assistance, a provision of the 1972 Industry Act. There is no automatic right to funding: a company must demonstrate that the investment would not otherwise have been made, that it would have been at a lower level, or delayed. Discretionary grants to encourage employment are awarded on a similar basis, the criterion being that a company moving to an assisted area has a genuine choice

between locations and would not proceed as proposed without financial support.

The taxation position of regional funding depends on the source. Statutory grants for SDA and DA investment are not deducted from the total cost before tax allowances are calculated, so that the net cost of a project is reduced still further. For every £1 of gross investment in an SDA by a company paying 25% corporation tax, the real cost is reduced to 20p. All other forms of assistance are treated as trading income, however, increasing a company's total liability for tax.

Among the miscellany of aid for which a business might qualify are loans on preferential terms from the European Coal and Steel Community fund in the EEC Areas in which either steel or coal were once dominant activities attract finance as an aid to reducing the critically high levels of unemployment which prevail there.

Adding Enterprise Zones to 1980 to the list of regional incentives has allowed the government greater flexibility to pinpoint areas for assistance. Critics maintain that the Enterprise Zone concept - in which companies are given ten years free of rates and receive only nominal planning permission - is a blunt instrument. The objections raised are two-fold.

With such a concentration of incentives on an area as small as 400 acres, a surrounding band many times that size will fall rapidly into decline and create even more unemployment. No less a criticism is that the benefits will not be passed directly to the company moving into the zones. In the absence of rates, freeholders will raise their rentals and reduce the net saving to the tenant company.

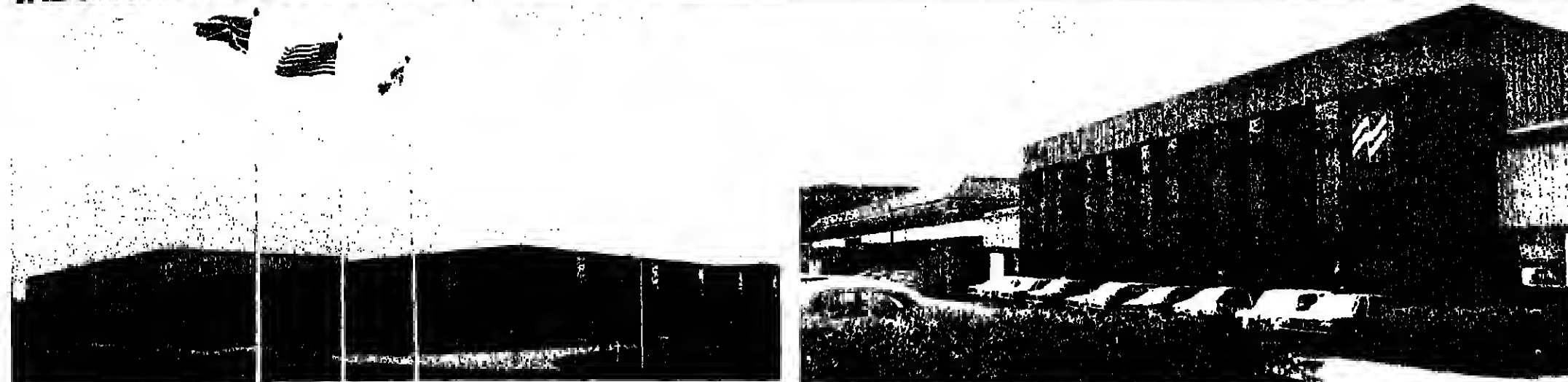
Since Enterprise Zone status is additional to SDA, DA or Intermediate Area assistance, there are localities on mainland Britain - such as Speke on Merseyside - which qualify for 22% grant, selective funding and a 10-year rates remission. These attractions pale into insignificance, however, when compared with Northern Ireland incentives.

While financial incentives are a key factor in a company's decision to relocate, many components of Scotland's "package" are available elsewhere in the UK. South Wales, a steel and coal closure area, for example, has access to the same funds from the EEC. Over in Northern Ireland, the financial budget is even stronger, although many companies would discount the cash bonus in the Province as a risk factor.

For a company considering expansion in any of the UK's assisted areas, funds will be drawn from statutory development grants from the Department of Industry, there may be selective employment grants from the DoB and specialist funding from Europe.

The key to Scotland's marketing strategy is Locate in Scotland. Offering what the unit describes as "one-stop shopping", Locate in Scotland provides from a single source both the advice and assistance available to a company.

There will be no sterile expanse of warehouse employing three men and a robot stacker, and the area should avoid the mushrooming of ventures attracted only by the Enterprise Zone. Indeed, the London Docklands have a future - one in which the computer industry could play a vital role.



Digital assembles computer systems to individual requirements or its Moshill plans in Ayr. It recently bought its factory, and a 65-acre site for expansion.

National Semiconductor employs 700 at this Greenock factory, and has a £22 million expansion programme to add 80,000sq. ft. of manufacturing space.

Electronics holds out hope of recovery for Scottish people

With the emphasis on attracting high technology to the region, the project has a specialist electronics team with direct experience of the industry. The aim is to strengthen the existing base of 200 companies from this sector, employing more than 40,000 people. In terms of these companies' "pedigree", about two-fifths have their principal operations elsewhere in the UK. A similar proportion are from overseas countries, while the remainder are indigenous Scottish enterprises.

Scottish higher education has a long history of involvement with industry; its role is now shifting rapidly towards advanced computing and electronics. Relative to their English counterparts, the country's universities have a higher proportion of students in engineering, scientific and business subjects.

Edinburgh University, for example, is closely involved in electronics through the Wilson Institute, where research is currently being undertaken in integrated circuitry and artificial intelligence. The city's second university, Heriot Watt, claims one of the oldest science parks in the UK.

Helping to establish links with the education sector is seen as a prime task for Locate in Scotland over the next five years. For a company moving to the region - or attempting to expand an existing site there - this practical assistance complements the statutory and discretionary financial support available in Scotland. While Locate in Scotland has no influence in the payment of regional development grants (a company qualifies simply by being there), the team can assist with the documentation.

When funding is selective, central government resources hinge on a company demonstrating its viability, and the fact that without the support expansion would either not take place, or it would be in another country.

The role of Locate in Scotland is particularly critical when Scottish Development Agency finance is at stake. Current policy is to take only a minority involvement in a company, rarely more than 25% of the equity. Where preference shares are taken up, however, the SDA may take up a significantly greater proportion.

Under no circumstances would the Agency seek to become the majority shareholder, preferring instead to invest alongside commercial banks and insurance companies.

David Wilkins, marketing manager of the Locate in Scotland project, outlined the SDA's objectives in making an investment. "We normally look towards holding an investment for five to seven years, and then sell our stake back to the prime investors. We see our funding as an influence in bringing people into Scotland, rather than a subsidy - the SDA is required to make an economic return on its

investments." Under competition from other UK regions, Scotland's unique selling point is a good operating

environment rather than as an area which can offer the highest cash returns. The fact that some parts of Scotland do qualify for the high-

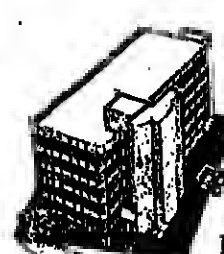
est level of grants, European Coal and Steel Community funding and rent free accommodation, is a bonus.

Wilkins contrasts his organisation's marketing approach with that of the Welsh Development Agency - much in evidence through its television advertising campaigns. "We are tending to concentrate on particular sectors where we think Scotland has an established track record, a good basis of research and a first-class skill base. While we are keen to attract computer applications, we do not have to employ non-target generalised advertising."

● Turn to page 19



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The plans are to replace the 4300s with a new generation IBM 3080 series machine and transfer all systems to MVS/IMS.

Word-processing equipment is Philips 5002/3 and Data General Eclipse minis are in use for interactive scientific and technical applications. A CASE MSX II message switch processes telex messages around the world. An IBM 3750 computerised telephone exchange is installed in London and two Plessey PDX exchanges are in other locations.

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He/she will be responsible for evaluation, design and implementation of equipment, software and instrumentation relating to computer monitoring, control and data acquisition.

The ability to think logically and clearly present information both in writing and by means of formal presentations is essential.

The Company offers a competitive salary, linked to an incremental based plan, together with a non-contributory pension and life insurance scheme. Generous relocation expenses are available, where appropriate.

Please write giving full details of experience to: **Glohan Holland, Riley Advertising (Southern) Limited, Europa House, Queens Road, Bristol BS8 1AG.** Please list separately any companies to whom you do not wish your application to be sent.

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REAL TIME SOFTWARE FOR PROCESS CONTROL SOFTWARE ENGINEERS

An expanding sub-division of an International Professional Company specialising in Process Control for Power Station Computer Systems and Energy Management Control Systems seek additional engineers for permanent career in Software Development.

Based in Switzerland, successful candidates will be required to take full responsibility for all stages of development from design through to implementation in these English speaking projects.

Broadly speaking, we are looking for candidates to concentrate on establishing new Standard Software and who will more than likely have worked with or have an interest in most of the following: Modern Real Time Software, Computer Networks, Man Machine Communications, Multi CPUs Systems.

Candidates should have a high academic background and experience of most of the following: Real Time Software, Process Control, ASSEMBLER, PASCAL, FORTRAN, PDP11, RSX11 and VAX 780s. Some candidates may be called upon to travel worldwide for short term commissioning purposes.

Successful candidates may look forward to enhancing their career prospects, gaining valuable experience in an international environment.

Interviews will take place in London or the Continent in early July. For immediate consideration, please send a copy of your CV or telephone for further details and/or an application form.

CW22

(8804)

Creative Software Professionals Manchester

We have vacancies for creative Software Professionals for the research, specification and development of application independent software products.

Interest and experience in the design or implementation in one or more of the following areas is essential:

- Data Dictionary Systems
- Data Management
- Query Languages
- Terminal Handling
- Systems/Program generation on mainframe/minicomputer

The posts offer the opportunity to make contribution to a successful software operation. Attractive salaries for expertise and experience.

Interested? Think you meet our requirements?

Please write with full career details to the Personnel Manager, The National Computing Centre Ltd., Oxford Road, Manchester M1 7ED, or telephone 061 229 8333 for application form.

NCC
The National Computing Centre

(5742)



**University of London
Computer Centre**

Systems Integration

The University of London Computer Centre provides a National Computer Service to universities throughout the country. The Centre is equipped with Control Data 7600, 6800, 6400 and Cyber 72 computers and has recently installed a 16 Mbyte Amdek 470/V8 processor. A CRAY 1S processor will be installed in 1983 and can already be accessed at a separate location. A new Network Communications System is under development to support a large network of remote batch and keyboard terminals with access to other public and private networks. The Centre has adapted the X25, Tiple X, FTP and JTMP communications standards.

The Centre wishes to recruit a Systems Programmer with at least 2 years' experience in programming on either large or mini computers. The successful applicant will join a team of systems programmers working on Systems Integration within the Operating Systems Department. Duties will include integration and testing methods and monitoring the reliability of the running production systems.

Candidates with knowledge and/or interest in testing and maintaining Network Communications Systems software will be preferred.

Academic qualifications to degree level will be required. Salary commensurate with age, relevant qualifications and experience will be in the range £8070 to £10576 (under review) plus £1035 London Allowance.

Further details and application forms are available from the Assistant Secretary, ULCC Gifford Street, London WC1N 1DZ. Telephone 01-406 8400, extension 341.

Applications close three weeks from the date of this advertisement.

(8788)

SUPPORT ENGINEER

Tandon International require a Support Engineer based in Reading to assist and advise their distributor and large O.E.M. Dealers throughout Europe.

The successful candidate should have a good knowledge of Hard and Floppy Disk Technology and an ability to discuss controller problems.

Benefits include salary £11,000 to be reviewed in 6 months + Car + 5 weeks holiday.

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RON HALE

BOX NO. 1205

Tandon

(8888)

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Heath Road, Weybridge, Surrey
DEPARTMENT OF TECHNOLOGY

Lecturer I - Computing

to teach BEC/TEC, GCE 'A' level and similar courses to appropriate qualifications and experience to teach CP 111.

Salary Scale (under review): Lecturer I - £5034-£6040 p.a. plus £213 per annum London Fringe Area Allowance.

Commencing salary dependent upon qualifications and experience. Generous relocation expenses in approved cases. Further details and application form from the Principal to be returned by MONDAY, 14TH JUNE, 1982.

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PLEASE CONTACT IMMEDIATELY:
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(8774)

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to join a team teaching full time and part-time students on BEC/TEC Diplomas, NCC and GCE courses, and short courses for industry and commerce. Appropriate qualifications, and for the Grade II post substantial industrial/commercial experience in computing, are essential. Salary according to qualifications and experience within the range:

Grade II £5034-£5958
Grade I £5482-£10,431

both plus April 1982 award (around 6%). Details listed and from Principal. Completed forms to be returned as soon as possible.

(5783)

D.P. MANAGER

I.S.M. Computer D.P. Manager required for newly installed System 34 in a developing Wholesale Meat Company. Please apply in writing, to Mr. M. Vignall, Trust Meat Company Ltd., 394 Camden Road, London N7, with particulars of experience and expected salary.

(8778)

APRIL Advertising

5 Brighton Road Surbiton Surrey KT6 5LX. Telephone 01-399 9183

01-399 9183

computing centre manager

We are searching for a Computing Centre Manager for a new, recently established research facility of Schlumberger Drilling and Production Services. The new research division, Schlumberger Cambridge Research, has been formed to inject high level scientific research into areas which are still largely viewed as an art. Schlumberger Cambridge Research, therefore, consists of a very high level team of Research Scientists who are carrying out advanced experimental, analytical and numerical investigations.

The Computing Centre Manager will be responsible for setting up a new Computer Centre which will be the core of the new facility. The initial task will be to supervise the installation of a VAX11-780. Other tasks will include co-ordination with other computing centres in the group to ensure, in particular, software compatibility; recommend hardware and software extensions to meet growing

needs, (word processing and electronic filing, graphics, CAD, computer to computer communications, data acquisition and control). The Manager will also be expected to promote Computer technology in a world of scientists.

Candidates must have previous experience with VAX11-780, be a good organiser and communicator as well as having a wide knowledge of hardware. The company has a very positive attitude towards remuneration, therefore, the salary will reflect the importance attached to this role. This appointment is based in Cambridge. To apply, in the first instance, either send a curriculum vitae or phone for an application form quoting reference CCM. Please address your reply to Geoffrey King, Managing Director of Cambridge recruitment, who is advising the company on this appointment. The position is open to both men and women.

Schlumberger

SCHLUMBERGER CAMBRIDGE RESEARCH

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Boulevard De Constance,
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France.
Phone 010.33.6.422.48.27
Interviews, LONDON - Middle of June.

BOX NUMBERS

Box number replies should be addressed to:

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c/o Computer Weekly
Quadrant House
The Quadrant
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Targa

CHIEF PROGRAMMER

NW LONDON To £12,500
Due to a major expansion programme, and installation of IBM System 34's in each of its factory locations this leading company in the electrical industry is looking for a Chief Programmer. Substantial RPG II experience and familiarity with IBM SYSTEM/34 software and utilities are required; also a knowledge of Cobol would be advantageous. The role involves providing technical advice where necessary, and responsibility for the maintenance of all software. Ref: S3878

ANALYSTS & PROGRAMMERS

SURREY To £11,000+MORTGAGE
A Nationally renowned insurance company is looking for further Systems Analysts and Programmers to enhance its development teams, using large ICL 2900 machines. Ideally the Systems Analyst should have 2 to 3 years experience, with exposure to Database Systems, good experience of systems design in Financial or Management Information Systems and a COBOL background. The Programmer requirement is for persons with a minimum of 2 years ICL COBOL experience utilized within a VME or DME environment, working with financial applications. Salaries are negotiable and relative to experience and all positions attract a generous benefits package which includes MORTGAGE SUBSIDY. Ref: C3888

ANALYSTS

CITY To £11,000+MORTGAGE
Our clients, a leading city-based insurance Group, is seeking two further Systems Analysts to play major roles in their imminent Development projects. They require two people with a good ICL Cobol background capped by at least 1 or 2 years formal analysis work. Experience in financial or commercial applications is desirable and some insurance exposure would be particularly welcome. Our client would be very interested in talking to persons who match these requirements and in exceptional circumstances an even more generous salary and benefits package could be offered. Ref: C3698

ANALYST/PROGRAMMER

CITY To £11,000+MORTGAGE
Expansion of a major international Bank's EOP team affords an exciting opportunity for Analyst/Programmers with 2-3 years experience in banking, financial or commercial applications. The work involves implementation and development of systems, both in the UK and abroad on PDP11 and VAX machines, therefore a background which includes Basic, Cobol or a similar type language working with large MINI computers is desirable. Ref: C3914

PROGRAMMERS

SURREY To £7,000-£10,000+MORTGAGE
Our client is a well established financial institution based in Surrey. Due to major development work now being undertaken they wish to recruit bright young PL/1 programmers to their team. The position would be ideal for candidates with 1-2 years experience, perhaps seeking their first change as there are excellent chances of promotion coupled with a benefits package which includes MORTGAGE facilities. Ref: R3877

PROGRAMMER

LONDON To £9,000+MORTGAGE
Around 2 years IBM Cobol may give you an opportunity with a leading European bank to be trained in CICS and DL/1. Whilst exposure to this or similar software in a banking or financial environment would be useful, the main criteria are considered to be personality and attitude. An excellent range of banking benefits, including MORTGAGE is offered. Ref: R3943

JUNIOR ANALYST

CITY To £8,000-£10,000+MORTGAGE
A major British bank have an opening which could provide the first step into a full Analyst role. Some analysis experience is required probably gained in an IBM environment as an Analyst/Programmer. The company have some exciting development plans which together with a significant hardware upgrade offers a challenging and rewarding opportunity. All the usual banking benefits, including MORTGAGE are available. Ref: R3733

ANALYST/PROGRAMMER

CITY To £10,000
An Analyst/Programmer is required by a leading city based bureau, dealing mainly with financial/banking applications. They are looking for confidence, ambition and an IBM GSO background, utilising RPG II and III. Good potential for progression to S38 and into Systems Analysis is offered for the selected candidate. So, if you have 2-3 years RPG experience and would like to be involved in the development of bureau applications in a progressive company, please contact us immediately. Ref: S3947

ANALYST/PROGRAMMERS

N LONDON To £9,000
A leading engineering company are looking for 2 Analyst/Programmers with an IBM SYSTEM 34 or 38 background. An experienced RPG II or III programmer who would like to move towards Systems Analysis, would be ideal. Excellent promotional prospects are offered, and a package including annual bonus and non-contributory pension is available. Ref: S3933

PROGRAMMER/ANALYST

CITY To £9,000
This BANK in Central London is looking for a Programmer/Analyst with approximately 18 months to 3 years experience in an IBM GSO environment utilising RPG II and III. The selected candidate will be required to work abroad for 10-12 weeks of the year and will receive an attractive "Banking" package, which includes a generous mortgage subsidy. A high standard of education (preferably degree) is required, and experience of banking applications advantageous. Ref: S3924

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SYSTEMS ANALYST

up to £10,185 plus benefits
The Computer Systems Department is responsible for the analysis, design, testing, implementation and maintenance of all mainframe systems.

The person appointed will be in a small team of analysts under a project leader and will be expected to be able to work both as a member of a team entering large projects and independently on small projects.

Candidates must be able to demonstrate that they have seen projects through all the stages above and are able to communicate effectively with all levels of staff both verbally and in writing. Experience of VME/8 is an advantage but is not essential.

In addition to the annual salary there is an attractive package of fringe benefits. Application forms are available from Mr. Roy G. Hewson, Assistant General Manager (Personnel and Administration), Britannia Building Society, P.O. Box 20, Newton House, Leek, Staffs., ST13 5NG, or telephone Leek (0538) 365131, Ext. 18.

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up to £8,745 plus benefits
Technical Support is responsible for the VME/8 base and associated software. It is also responsible for TP and for the performance of BATCH and MAC work.

The site is currently running on 6.14 and the immediate future will see the move to Release 7. Implementation of New York Management and the addition of FDS940s prior to the expansion of the TP system.

The person appointed will join a team of 4 people. Applicants should have experience of VME/8 and a knowledge of TPMS. Performance monitoring on new work would be an advantage.

MANAGING DIRECTOR

BDS, a leading supplier of computer peripherals specialising in printer systems, have a vacancy for a Managing Director of Corporate Operations to accelerate growth within the U.K. and Western Europe.

The candidate must be able to demonstrate a successful marketing background with total responsibility for full financial control.

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Personnel Manager
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Candidates must have a minimum of 2 years experience in site servicing of disc based mini-computer systems, preferably in a remote terminal/telecommunications environment. Data General or DEC knowledge would be an advantage, but peripheral engineers wishing to advance onto mini-computer systems will be considered.

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International Bank requires Programmers and Programmer/Analysts who are willing if necessary to relocate outside London.

Candidates must have a minimum of 3 years programming experience on mini-computers, preferably DEC PDP, programming in AIMS, BASIC+ and/or COBOL. For the Programmer/Analyst positions, practical analysis and design experience is essential, and some knowledge of staff supervision gained in a financial environment.

Applicants should also be prepared to travel throughout both the United Kingdom and Overseas.

SECRETARIAL

INTERNATIONAL BANK
JUNIOR PROGRAMMER/
ANALYST

c. £9,000

Prestigious City-based Bank seeks a Programmer/Analyst aged approximately 25 and with previous NCR & COBOL programming experience. Ideally the candidate will have gained his knowledge of Data Processing in banking, or financial applications.

For this post the candidate will need to be a conscientious and enthusiastic worker.

We have many more Data Processing vacancies both at senior and junior level; therefore, for more information about the above appointments and others, please contact BEVERLY COLLINS ON 01-236 7961

David Grove Associates

60 Cheapside London EC2V 6AX
Tel: 01 248 1858

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SOFTWARE ENGINEERS

c £9,000 p.a.

Westinghouse Signals, a member of the Hawker Siddeley Group, is responsible for the complete design, manufacture, installation and commissioning of Railway Signalling Control Systems in the UK and overseas. As part of the Company development we are now looking for the following:

Software Project Leader

Required for our Software Development Department. All software being developed is for real-time control systems based on a variety of micros and minis. This includes the most exacting field of safety systems. The ideal candidate will be educated to degree level and will have a sound background using high and low level languages for real-time applications. Experience of project

WESTINGHOUSE SIGNALS

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control, estimation and the production of specification and documentation to a high standard is considered important.

Software Engineers

Qualified Engineers with experience of software for A.T.E. are required for development of both hardware and software for a range of computer based test equipments, including printed circuit card testing.

Applicants should have at least 2 years relevant experience. Familiarity with HPL and BTL as used on the HP3060 could be advantageous.

Successful candidates (male or female) will be offered salaries negotiable around the stated figures and an attractive relocation package where appropriate.

Interested applicants should write giving full career details to: Miss F. T. Cox, Personnel Officer, Westinghouse Signals, PO Box 79, Foundry Lane, Chippingham, Wills Telephone (0249) 41411, extension 700.

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ABU DHABI

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1. Senior Personnel Officer (CPA) 2. Department of Petroleum
P.O. Box 303 P.O. Box 9
Abu Dhabi, U.A.E. Abu Dhabi, U.A.E.

Knowledge of Arabic will be an advantage. Any applications which fail to comply with the above will be disregarded.

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Interviews are being conducted at our Bristol office. Appointment contact Beverly Clark and Carol Rogers, Bristol Office.

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PL/1, Assembler
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Also

DIGITAL HARDWARE ENGINEERS

This is a selection from our list of current requirements and we have many more assignments in the Real-Time Mini and Micro field during the next few months.

We are particularly interested in hearing from experienced and "First-Time" contractors wishing to work in the NORTH OF ENGLAND, where R.T.C. is soon to open a regional office.

£26K to SAUDI £37K

We have requirements throughout 1982 for IBM Consultants (at all levels) with experience of: PL/1, MKIV, IMS DB/DC, TSO/SPF and JCL for assignments in Saudi Arabia and the UK.

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Telephone 01-373 3063

LAN Support & Development

Thames Valley: Salaries to £12K

Communications Software Analysts and Designers, who have been primarily involved in Research and Development but are now seeking more customer contact, are urgently required by our clients. Candidates should have been employed in a mini- or micro-based distributed processing environment for at least two years where their role has encompassed Systems Design and Programming. Software skills should include fluency

in an Assembler and a high-level, block structured language. There will be initial product training at the Company's U.K. headquarters where successful applicants will become familiar with both the design concepts and the applications area of a broad-based LAN. Subsequently the majority of time will be spent assisting clients in the tailoring of the system to particular applications areas. Ref: L/22/A

Navigation Systems

Inner London & Home Counties: Salary to £12K

A highly regarded supplier of precision instruments and electronic devices is seeking several Software Development Engineers for either its Central London support facility or its Thames Valley-based Research & Development Laboratory. Suitable applicants must be mature graduates who are currently involved in the design and development of microprocessor-based control systems. Practical programming skills must

include total fluency in one or more of: Pascal, Fortran or Macro 11. Candidates should have the ability to resolve complex software problems for end users demanding total reliability or where operating conditions are not necessarily conducive to high technology products. For certain positions you should have project team leadership aspirations which will reflect in the salary offered. Ref: L/22/B

Real-Time Computing

Netherlands: Salaries to £15K

On behalf of an expanding Systems Supplier and Consultancy, we are seeking a number of Software Programmers and Applications Engineers for permanent career positions in the Netherlands. Candidates should hold a numerical degree and have at least one year's post-university experience. Software programming expertise should include fluency in a high level language such as RTL 2, PASCAL or ADA with preferably a working knowledge of an Assembler language as a subsidiary skill. Of particular interest will be those who have participated in the development of a PDP or VAX based real-time system or, alternatively have utilised a 32-bit mini-computer in a software development tool. Ref: L/22/C

Pascal Programmers

N. Home Counties: Salaries to £10K

The Research and Development division of a leading multinational corporation requires a number of Programmers to assist in the development of both Applications and Systems Software. All respondents should possess a degree or H.N.C. in a relevant discipline followed by at least two years in industry. A minimum of one year's development experience on either Intel 8085 or Z80 based systems, preferably running under CP/M or PDP11 is essential as is fluency in Pascal. A knowledge of processing techniques and an Assembler language are useful supplementary skills and will attract a salary premium. Ref: L/22/D

C + UNIX Designers

Greater London: Salaries to £11K

An internationally recognised supplier of hardware and Software Systems plans to introduce a new product line based around the 'C' programming language and running under UNIX. Suitable respondents should hold a numerical degree and be fluent in an Assembler language and at least one high level language, preferably C or Pascal. Of

additional interest will be those who have current involvement in a systems development role on any leading 8- or 16-bit microprocessor. Whilst the majority of development work is obviously conducted in-house, a degree of mobility is essential for client visits during implementation and subsequent sales support. Ref: L/22/E

Assembler Programmers

Essex: Pkg to £12K + Relocation

A leading British financial institution with offices in rural Essex is currently seeking additional Assembler Programmers for its recently installed distributed processing system. Applicants should offer a minimum of 18 months' Assembler programming experience preferably gained in a financially orientated real-time mini-computer or mainframe environment. Particular hardware is not important, as the client offers excellent in-house training. However,

for the more senior position of Lead Programmer, applicants must offer some knowledge of IBM mainframes, TP systems, IMS and/or structured programming techniques. These positions represent outstanding career opportunities and if you demonstrate potential, you will be able to progress rapidly into either systems analysis or management. There is an excellent relocation package for applicants not resident in the Essex area. Ref: L/22/F

Micro Design Engineers

Thames Valley: Salaries to £10K

A number of Microprocessor Design and Development Engineers are sought by a leading microcomputer and semi-conductor manufacturer. As there are a considerable number of positions available, the variety of skills required is, necessarily, diverse. However experience in one or more of the following areas is essential: customisation of Operating Systems such as CP/M or MP/M, with a salary premium attached to

knowledge of a networking OS; compiler and cross-compiler development particularly if utilising PASCAL or C; familiarity with a leading MDS and, also, experience in the design and production of interface hardware and software. A degree of customer contact is a feature of most of these positions and, therefore, an outgoing personality and good communications skills are required. Ref: L/22/G

Product Marketing

Central London: Salary to £17K + Car

A leading supplier of Hardware and Software Systems has an immediate requirement for several Product Marketing Engineers and Consultants for its Central London headquarters. Candidates, aged 28-35 years, should have recent or very recent experience in a similar role preferably within a supplier of Commodity, Banking or Insurance orientated systems. Preference will be given to candidates who have experience

of the majority of the following work areas: marketing studies, product appraisal and planning, mailing and canvas, "shots", seminar presentation, product demonstration, public relations and lecturing to customers' staff. Whilst generally you will be working at our client's premises, these positions will entail a degree of national travel. Ref: L/22/H

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California

**assignments for 8 analyst-programmers
circa \$35k p.a. (circa £19k)**

- start in 2 months – more than enough time to make all the best arrangements; booked holidays need not present a problem.
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- sunshine location 5 miles from the Pacific; all the benefits of a country location with quick and easy access to central L.A.
- professionally run DP department of high-tech corporation; 4300 under MVS runs terminal network throughout USA.
- very attractive accommodation available, excellent amenities – surfing, sailing, tennis etc.
- your salaries in the region of \$35k p.a., combined with our comprehensive, well-proven US relocation package and the significant tax concessions make for an excellent standard of living in the US's most exciting state.

Phone TODAY for a rapid assessment and interview: our American clients are in England with us on 21st June. If you have a c.v., mail it today and PHONE as well. Reverse charges accepted during working hours; 24 hour answering service; interviews in London, Croydon, Birmingham and Manchester. Computer People International, VLI House, 68-69 St. Martin's Lane, London WC2N 4JS.

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If you enjoy being at the centre of things...

MVS

We are the Group Control and Communications Centre responsible for providing the facilities and know how behind some of the most ambitious information and control systems in Europe.

New multi million pound systems projects for the 80's are evidence of our commitment to a multiple IBM Mainframe service and in particular the refinement and enhancement of MVS.

We would like to meet with an experienced Systems Programmer who combines a solid grounding in MVS support with the creativity and skill vital to a demanding and professional organisation.

Our activities in multi-access technology Database and Communications, guarantee your on-going career development.

An attractive salary and superb benefits package including a Company Car, Bonus Scheme and generous relocation expenses, round off a first class opportunity in a glorious rural location.

For more information on this opportunity, please contact our Advising Consultant, **Alan Carnell on 021-236 3781** (24 hour service) or Evenings and Weekends to 9.00 pm 01-891 1555. Alternatively, please submit a comprehensive C.V. to our Birmingham offices.

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021-236 3781

NORTH
Blackburn House, The Pinnacles,
Manchester M3 2JA
061-833 0427

BRITAIN
Avenue Leisure 327,
Boulevard, 1000 Brindley,
010 322 440 7161/71

HOLLAND
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1071 JL Amsterdam
010 8120-7809/47

New York Banking

Manufacturers Hanover Trust Company

is the fourth largest American bank, with headquarters in New York and facilities in 40 countries world-wide. The company is at the forefront of the movement from traditional banking methodology to newer, more sophisticated techniques. We operate a structured career development policy, fulfilling all relevant training needs, so that progression may be via both technical and managerial paths. We now wish to expand our DP department by offering permanent positions to DP professionals from the UK which, in addition to the starting salaries indicated, carry substantial banking benefits.

As the environment is primarily IBM, we are particularly interested in hearing from those with experience of: ★ On-line OS or DOS COBOL and ASSEMBLER languages ★ IMS or CICS and DL/I.

In London we have a department whose sole responsibility is to recruit for the New York office, answer any questions you may have, process all visa applications, assist with relocation and generally help and advise. Brief descriptions of some of the positions available are given below.

Senior Systems Analysts

to c.\$35,400

We are looking for the full range of analytical and design skills, ideally coupled with a programming background.

Systems Analysts

to c.\$28,800

Previous experience as a programmer is required, plus familiarity with the techniques of systems analysis, systems design, file design and data access techniques.

Senior Programmer/Analysts

to c.\$35,400

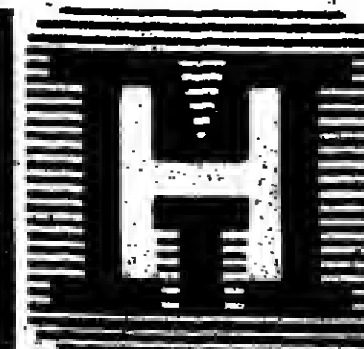
The main responsibility will be the provision of technical guidance for programmers and projects, including scheduling and co-ordinating.

Programmer/Analysts

to c.\$28,800

Considerable programming experience and some systems design experience are required, so that support for complex programming projects may be given.

If you are interested in finding out if your experience matches our requirements more closely, please contact Joan Ainsworth on 01-600 5666 extension 3533 or write to her at Manufacturers Hanover Trust Company, Queensbridge House, 60 Upper Thames Street, London EC4V 3EN.



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Please apply in writing quoting reference CW to Or J. M. Nelson, Manager, Geng-Nall Software, The Trading Estate, Farnham, Surrey GU14 0PD.

An equal opportunity employer.

876

Candidates should have several years' successful managerial experience plus the enthusiasm, drive and ability to effect the changeover from ICL 1903T to an ICL 285 scheduled for delivery in July 1983) and to develop the potential of the new installation.

Further details and application forms, returnable by 11 June 1982 available from Personnel and Management Services Officer, Chief Executive Officer's Department, Toward Hall, Orkney Road, Bootle, Merseyside. L20 7AE. Tel. 051-522 4040, exto. 324.

Conveying will disqualify.

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A Division of Texas Instruments Limited



July 1910

LBMS RECRUITMENT

Contract Programmers

wanted to join between July and October 1982.

South West Attractive Contract Rates

LBMS Ltd, Projects Division, is involved in an exciting database development project in the South West for a well-established ICL user.

Essential requirements:

- 3 years + COBOL experience
- Good knowledge of VME/B

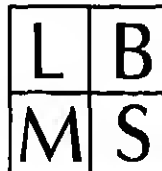
Desirable requirements:

- IDMB
- TP 2900
- Structured programming

The duration of these contracts will be between 6 months and 1 year.

There are also some vacancies for SENIOR PROGRAMMERS, who need some 2 more years experience than the Programmers.

If you meet the above requirements, and will be available between July and October, please contact Tim Armistead. This is an exceptional opportunity both to work on a major development project, and to reserve your next contract long before the expiry of your current assignment.



Tim Armistead
LBMS Recruitment,
21 Newman Street, London W1P 3HB
Telephone (day) 01-636 4211
(evenings and weekends) Epsom 25 104
quoting reference 1022.

SAE

MAJOR BRITISH MANUFACTURER SUCCESS STORY

With turnover approaching £18 million, this very successful mini computer and systems manufacturer, based in the Northern Home Counties is in a really expansive mood and requires more skilled personnel now. Reasonable expenses will be provided to the successful candidates if required.

CUSTOMER SERVICE ENGINEERS

LONDON AND HOME COUNTIES To £8K + CAR
More alert, qualified people with mainframe/mini or peripheral experience to service its rapidly expanding customer base is now needed. A minimum of ONC + 2 years' experience is essential. Career prospects are excellent and salary is made up of standby and overtime allowance.
CW22/B

SYSTEMS PROGRAMMERS

HERTS To £10,000
More alert people are required to provide software technical skills in the area of dump facilities/load facilities and debugging aids using low level languages. Successful candidates should have a background of implementing software that works and the ability to produce associated documentation.
CW22/B

(SENIOR) ANALYST PROGRAMMER

HERTS £8,000 to £12,000
More alert people are required to design, specify and document COBOL, CORAL & TP systems for both Commercial and Scientific applications. These people will be in the forefront of technology as new products are coming along all the time. So work will be both extremely interesting as well as rewarding.
CW22/10 MICHAEL

'MAY' BE FOR YOU!

BANKING SYSTEMS ANALYST

To £13,000 + Perks
A small bank based in the City with a SYSTEM 38 now requires someone with banking or similar background who would like to work in a small friendly team. RPG III is not essential but would be useful as there is also an Analyst/Programming vacancy.
CW22/7 TRICIA

ANALYST PROGRAMMER

To £9,500 +
We have a commercial company who require an experienced analyst/programmer with an ICL background for their support group. The firm's latest acquisition is an M28, so if you have experience on this machine you are a more than likely candidate. Ring now for further details.
CW22/5 TRICIA

SENIOR SYSTEMS ANALYST

To £12,000
An insurance background is not essential but is certainly an advantage to join this ICL based organisation. A nice mortgage subsidy after a year is only one of the perks working for this company. They have excellent working conditions and the countryside around is superb. Of course the work itself is extremely rewarding and will do your career no end of good.
CW22/8 TRICIA

RPG PEOPLE

HOME COUNTIES to £10,000
We are looking for experienced RPG Systems 34/38 Programmers and Analysts Programmers for multi various vacancies in C. London, Enfield, Bromley, Haringham and South West Middlesex plus other locations. All these companies offer super opportunities for career progression plus relocation expenses and also offers banking perks. Please ring now.
CW22/4

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Programmer London
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Telephone Alan on 01-995 4148 for information

Recruitment Consultants
UNIVERSAL COMPUTER ASSOCIATES LIMITED

01995 3883 (01958 6138 Evenings)

Data Express House, 3 Prospect Place, Heathfield Terrace, Chiswick, W.4

SYSTEMS PROGRAMMERS

LONDON/SOUTHERN HOME COUNTIES £9,000 to £15,000
Presumably you do exist? If you have any in-depth experience of one of the following, we have a number of well-based clients eager to pass a very good salary into your hands: DOS/VSE, OS, VS, VM, MVS, IMS, CICS, STAM or VTAM. Trainee Systems Programmers with an application programming background would also be very welcome. CW22/1 TRICIA

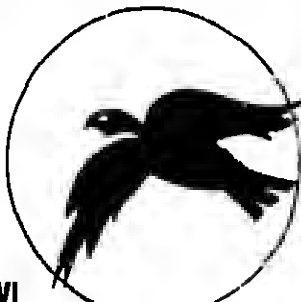
TECHNICAL PROGRAMMERS/MANAGERS

£12,000 +
An internationally famous Computer Manufacturer is developing a range of micro/minis to be compatible with their major range. The successful candidates should have high level language experience plus a systems design/software role in operating, computer or Data communications systems. They are also looking for two managers to control this development.
CW22/2 MICHAEL

CONSULTANTS

LONDON/MIDDLE-EAST £12,000 to £22,000
A large well-established consultancy in the forefront of strategic planning and Company DP assessments, requires consultants who are young to 35 yet can advise at the highest levels. A minimum of 8 years in computers is essential plus the ability to communicate with clients who expect a first-rate service. Actual computer background is not important although preference will be given to latest technology products in communication and real-time systems.
CW22/3 MICHAEL

EMJAY COMPUTER SERVICES



MAKE THAT CAREER MOVE NOW!

ANALYST/PROGRAMMER c£8500

Our client, a multi-national company requires an Analyst-Programmer to add to their team. You should have a minimum of one years experience on an IBM site using ASSEMBLER. Due to the wide range of applications COBOL and RPG II coupled with formal analysis TRAINING will be given. A good benefits package is offered with this vacancy.

TRAINING IN THAT 4 LETTER WORD - CICS

ANALYST/PROGRAMMER £7-10,000

Are you fed up with applying for really good jobs and find you are turned away because you haven't got CICS experience? Well, here's an ideal opportunity for you to change all that! Our client needs someone with 2 years IBM COBOL to work in a small team. They are prepared to train you in CICS and pay you an excellent salary and bonus. Interested? Of course you are. Call us for more information.

RPG II PROGRAMMER £7-10,000 + generous benefits

Are you a RPG II programmer in a site going nowhere? Would you like the chance to get more involved? Our client, a major banking organisation, can offer you an opportunity to progress. You should have a good basic education and a minimum of one years programming experience. For more information on these and many more vacancies please call Harvey or Lynda on 01-242 0078 or 01-404 4336.



COMPUTER SERVICES
Recruitment Consultants

IMMEDIATE CONTRACTS FOR PROGRAMMERS

| | | |
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| BUSINESS ANALYST | Wolverhampton | DEC DIBOL |
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| ANALYST PROGRAMMERS | Sussex/ London | IBM Sys 34 |
| ANALYST PROGRAMMER | Croydon | RPGII |
| ANALYST PROGRAMMER | Kent | DEC RSX/RT11 |
| ANALYST PROGRAMMER | London | Macro DEC/VAX |
| ANALYST PROGRAMMER | Croydon | BASIC |
| DESIGNER | Croydon | PL1 CICS |
| ANALYST PROGRAMMER | Croydon | ADABAS |
| | | IBM Cobol |
| | | IMS DB/DC |
| | | IBM Cobol |
| | | IMS DB/DC |



For further details contact MIC POLAND
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c£19,500 per annum +

Our Client is a profitable, professional and fast growing leader in the computer services industry, with an envied reputation for the quality and scope of its computer service, software product range and professional staff.

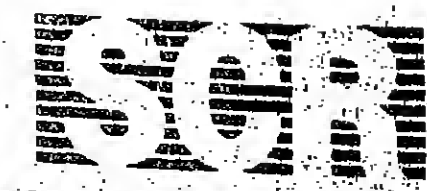
A recently created Sales Division, recognised as the fastest growing sector of the company, was formed to capitalise on the rapid growth of the UK client base and business (approaching a turnover of £10M), providing the future management for planned branch offices and divisions.

The continued spectacular development of this division offers the opportunity to sell a range of products for vital management systems to both new and existing clients in well defined market areas.

This will prove most attractive to the above average sales executive, wishing to add marketing experience and team leadership to their success in sales.

Ideally, you will have a proven sales track record with a service bureau, major computer supplier or software house, and have a good understanding of the computer industry in general.

For further information and immediate confidential interview, contact Peter Dudgeon on 01 935 0671 (24 hour answering service) or 01 674 8627 (evenings and weekends).



Specialist Computer Recruitment Ltd

London 01-835 0871 James House, 46 James Street, London W1
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Brussels 010 322-640 7151/74 Avenue Louise 327, Boite 4, 1050 Bruxelles
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Logitix

Logitix Recruitment Limited

10 Grenville Place, London SW7 4RW

Telephone 01-373 3063

Jnr. Macro-11 Progs.

E.E.C.: Pkg. to £12k

A number of Macro-11 Programmers, willing to relocate overseas for a minimum of 12 months, are required to join the Italian and German offices of a leading British Systems and Software House. Suitable applicants will be graduates with a minimum of 12 months' real-time programming on a POP-11 configuration running under RSX 11M. Fluency in Macro 11 is, of course, essential, but candidates able to offer additional skills in Fortran or Pascal are particularly encouraged to apply. Applications experience should, ideally, have been gained in a data communications or process control environment. Ref. L/20/A

Pascal/Unix

South England: Salaries to £10.5k

A Systems and Software supplier, renowned as one of the U.K.'s leading high technology companies, is currently seeking PASCAL Programmers for its software development group based in Southern England. Suitable applicants will be graduates in a numerical discipline with at least one year's industrial experience in a real-time scientific environment. It is essential for all positions that you offer fluency in PASCAL, preferably gained on a mini or micro-computer running under UNIX. In particular, our client will favour applicants who have had exposure to PDP-11 or VAX 11/780 machines. For the more senior positions, you should have some knowledge of Computer Aided Engineering, and, obviously, demonstrate management potential. Ref. L/20/B

RSX-11 Applications & Syst.

Hants/Surrey: Salary to £12k

On behalf of the Consultancy and Software Services Division of an E.E.C.-based company we are seeking a number of Systems Engineers and Applications Programmers. Software programming experience should include fluency in a high level language such as Pascal or Fortran, whilst some involvement with an Assembler will be considered a useful secondary programming skill. In certain cases candidates must have actively participated in the development of a distributed processing system where either POP-11/RSX or VAX/VMS hardware and software is utilized. Additionally, the company wishes to recruit for its Research & Development Unit a number of Programmers who are familiar with M.O.D. hybrid systems where stringent programming and design specifications within a multi-microprocessor environment are employed. Ref. L/20/C

Data Communications

Central London: Salary to £13k

A renowned supplier of Hardware and Software Systems is seeking a number of Data Communications and Telecommunications Designers/Engineers for its Central London operations. Successful candidates should have at least one numerate degree and be fully familiar with recent product developments in the areas of Local/Remote Area Networks, Word Processors and Office Automation Systems. Of special interest will be those candidates who have a profound knowledge of data communications, protocols, techniques, ie X-25, HDLC/SDLC. Candidates must have had recent experience of software programming and systems design in a high level or block structured language will generally receive a salary premium. Good personal presentation skills are of paramount importance since you will be expected to liaise with both technical management and non-technical personnel. All positions will entail a degree of travel within the Home Counties areas and occasionally overseas. Ref. L/20/D

Graphics/CAD

Home Counties: Salaries to £11k

A market leader specialising in the production of computer systems for design applications is currently seeking additional Systems Programmers and Applications Support Consultants. Suitable applicants will be numerate graduates, preferably with a degree in either Mechanical or Civil Engineering. Subsequent industrial experience should include at least one year's Fortran or Assembler programming experience in either a technical or scientific environment. In particular, knowledge of Finite Element Modelling, Numerical Control or Computerised Drafting Systems would be of distinct advantage. All positions will involve a degree of national and international travel and, in certain circumstances, a company car will be provided. Ref. L/20/E

Management Consultants

Central London: Salaries to £18k + Car

A U.S.-owned international Consultancy is currently seeking additional Management Consultants for its Central London operation. Suitable applicants will be graduates who have at least five years' data processing experience and have progressed into a management role. You should offer a wide-ranging knowledge of hardware and business applications, but of paramount importance will be the ability to identify problems from both a business and technical point-of-view and to communicate with personnel at all levels. In particular, our client has a stated preference for applicants who have had exposure to IBM hardware and are familiar with structured design techniques, database management systems or networked systems. The above-average salaries offered reflect the importance of employing Consultants of a high standard to maintain the Company's excellent professional reputation. Ref. L/20/F

Comms. S/W Designers

South Wales: Salaries to £11k

A world-leading supplier of telecommunications equipment has a number of requirements for Communication Software Designers to join its Research and Development facility. All candidates must possess at least one degree in Computing Science or Electrical/Electronic Engineering and have had two years, or more, in an industrial environment. Past responsibility for hardware implementation, as well as software design of low level protocols up to, and including, Transport Service will be favoured. Applicants should, preferably, have hands-on experience with a leading MDS and be fluent in an Assembler and one or more high-level block structured languages. Ref. L/20/G

Firmware Programmers

Cambridgeshire: Salary to £10k

A hardware manufacturer and software supplier, with a rapidly expanding customer base, has a number of vacancies in its Research and Development Department. Applications are invited from those with experience in the design and production of single or multi-board computers, interface design and microcode assembler programming. All candidates must be graduates and thrive on working in a loosely structured but dedicated environment where technical expertise is highly rewarded. Ref. L/20/H

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A major recruitment supplement

to coincide with a major computer show

Belle Vue
MANCHESTER
June 22-24 1982

To coincide with Computex North the June 17th Computer Weekly will contain a special recruitment supplement. Editorial will cover the computer market in the Midlands, North of England and Scotland. Topics covered will be relevant and written by experts and staff writers covering a wide range of subjects linked to the job market in these areas. This issue will be distributed in the normal way to all Computer Weekly readers throughout the U.K. and will also be available to visitors from the Computer Weekly stand at Computex North.

To be sure of your space reservation, phone nearest Computer Weekly classified office today.
London: (01) 661 0121.
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June 17 Issue
NORTH '82

This issue is perfect for recruitment advertisers - the editorial environment is right, the target audience is captive, and as Computer Weekly has a total circulation of over 100,000 copies every week, advertisers can be sure their advertisements will be read.

Computer Weekly

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You have experience of placing people in permanent positions and knowledge of Computer operations. You seek exceptionally high earnings with an early opportunity to move into Management.

We are long established in the Computer operations Programming field and seek to build our permanent recruitment Department.

You are 25 to 35, a self starter and ambitious.

We will reward you.

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01-948 5922

SHIFT MANAGER Cambs/Lincs Borders c-£11,000

This well established yet still expanding IBM installation provides a complete service to users throughout this progressive and successful company. As a result of a re-organisation within the operations function there is a vacancy for an additional Shift Manager.

Emphasis is given to providing a high service level to users, running a 24 hour shift 6 days each week and this will include the provision of an on-line telecommunications based system to remote users throughout all shifts.

Candidates for this responsible position must have had extensive computer operations experience including some significant supervisory experience in IBM mainframe installations. Preferably this should have been gained in a DOS environment as our client operates a dual 4341 installation under DOS/VSE. Knowledge of JCL and utilities and other major IBM software including VM and CICS would be useful.

Previous experience should also include operating in an installation with a major on-line TP facility with a demand from users for high service levels on that system.

Salary will be negotiated in accordance with the indicator shown and will reflect the ability of the successful candidate and also the senior level of this position. Relocation expenses and an interest free bridging loan are available in appropriate cases.

Contact Ivor Norton quoting reference CW/8222

Ivor Norton Management Services Ltd.
RECRUITMENT CONSULTANTS
P.O. Box 63, Copthall Tower House, Harrogate, HG1 1TS.
Telephone Harrogate 66628
24 HOUR ANSWERING SERVICE (0423) 55311

ANALYSTS & PROGRAMMERS Cambridgeshire

Our client has a successful IBM mainframe installation and developments include TP based systems and an increasing use of distributed processing.

Applications are invited for the following vacancies:

ANALYSTS £8,000 to £9,500

Candidates should have a minimum of 1 years systems analysis experience, together with a sound programming background. Appropriate remuneration will be agreed with the successful candidates which will reflect both their experience to date and also their potential for the future. (CW/8220)

PROGRAMMERS £7,000 to £9,000

Candidates should have from 2 years experience programming in PL/1 or COBOL working on a range of commercial applications. Training will be given to candidates in PL/1 or COBOL as appropriate. (CW/8221)

General conditions and prospects for career development are first class and where appropriate a generous relocation package would be available.

Contact Ivor Norton quoting the relevant reference.

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Business Analysts- Do you know which way you are going?

SALARY TO £11,000 PLUS MORTGAGE

You are a young, up-and-coming Analyst, currently working in Insurance or in a finance related field.

You are now considering an important career move, and are determined to make sure that you are going in the right direction.

Would the right direction be to join an internationally regarded insurance company which is totally committed to a significant five year growth plan, where you would join a new, young and highly motivated Business Systems Group? Would providing the best business systems for both existing and potential users motivate you? And would you enjoy the technical challenge of interfacing with the computer applications specialists when the best solution is computer-related?

If the answer to the above is 'yes', then you are already thinking about ManuLife.

What ManuLife will look for in return is a successful record in Business Systems, Computer Systems, or O & M, spanning at least eighteen months. In addition, you would also be expected to have a logical approach to problem solving, and respond well to fresh challenges as they confront you.

ManuLife's modern offices are in Stevenage, Hertfordshire, a town surrounded by beautiful countryside. The company offer generous relocation assistance where appropriate.

Benefits are good, including subsidised mortgage facilities, free restaurant and flexitime.

For full details, and application form, please telephone 01 439 8591, or alternatively return the coupon below.

Initial interviews can be conducted up to 8.00pm each evening, or on Saturday mornings, by appointment.

Please send an Application form and Company Profile to:

0229

Surname _____

First names _____

Full address _____

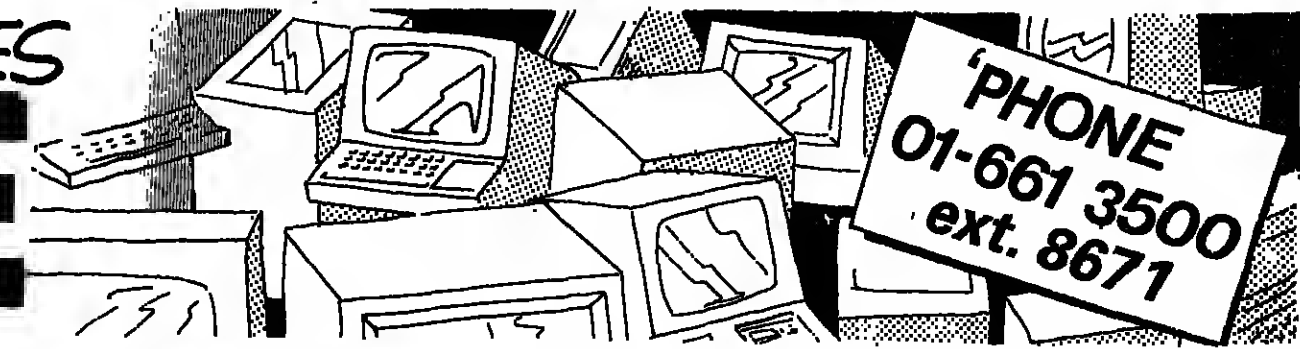
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Work tel _____

Ext _____

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TELEX-11

THE DEC PDP-11 AND VAX TO TELEX NETWORK INTERFACE

The diagram illustrates the Telex-11 interface system. On the left, a 'COMPUTER OR WORD PROCESSOR' is connected to a 'MONITOR PRINTER' and a 'PRINTER'. The 'MONITOR PRINTER' is connected to a 'TELEX-11' interface unit. The 'PRINTER' is also connected to the 'TELEX-11' unit. The 'TELEX-11' unit is connected to a 'TELEX LINE'.

- Eliminate dialling and paper tape
- Speed up your operations
- Messages can be held for off-peak transmission
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- Runs under RT11, RSX, RSTS and VMS
- Complete hardware and software package

Lambart

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